THE BUILDER

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ARCHITECT & CONSTRUCTOR

VOL. CLVII OCTOBER 20 1939 No. 5046

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(Illustrated)

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THE BUILDER

INCORPORATING

"ARCHITECTURE" AND "THE BRITISH ARCHITECT"

Vol. CLVII OCTOBER 20 1939 No. 5046

LET CIVIL BUILDING PROCEED!

SINCE we last drew attention to the need to encourage, by every legitimate means, the continuance of civil building work, a considerable amount of evidence supporting the suggestion has come to hand in the shape of quasi-official and private building schemes which, their sponsors intend, shall be proceeded with immediately, provided insuperable official obstacles are not placed in the way.

Thus, the Miners' Welfare Committee is to continue its programme of pit-head baths; the Team Valley Estate is to carry on its activities; Tunbridge Wells intends to proceed to completion with its Civic Centre; and South Shields is to approach the Ministry of Health for permission to go ahead with an Infectious Diseases Hospital to cost over £100,000. The Building Committees of Liverpool Anglican and Guildford Cathedrals have similarly announced their intention to carry on. These schemes, which represent but a small proportion of those put forward by bodies which are desirous of pushing on with their building, are conditioned only by the availability of materials and labour. The latter should increasingly be to hand as rearmament and A.R.P. building work slackens, but even at the present time a survey of stocks of essential materials will show that supplies are ample, not only for essential works, but for normal civil building as well. It is possible that there may be shortage of or restriction upon the use of a certain few materials, but where alternative methods and materials are available the uses of these should be explored.

No doubt, part of the shortage of materials is due to the accumulation of supplies to meet possible damage by raiders; it is a wise precaution that such a step should be taken. At the same time, we would point out that if this "future" safety is being purchased at the cost of present idleness and slackness among the professional and manufacturing sides of the building industry, then that cost will be too high. From both the moral and practical aspects, civil building should be encouraged to go forward, where its continuance can be justified. Not only are promoters of schemes offering work to those whose hands are, or may soon be idle, thus preventing the breakdown of a great machine, but they are saving themselves and the nation money, for prices (if 1919 figures are any guide) will not again be so low for years to come. The industry is looking for much in this direction from the consultations between Sir Connop Guthrie and the Building Industries' National Council.

Meanwhile, an example of the readiness of the building industry to organise itself for the public good is referred to on page 582, on which is described the part Marylebone architects and builders are prepared to play in rectifying damage that may be caused in that borough by enemy action. We congratulate both the Borough Council and the participants in this "Pool" on a scheme which we shall expect to see taken up by other municipalities.

"THE TRIUMPH OF WELLINGTON": AN ALLEGORICAL PAINTING BY J. M. W. TURNER, R.A.

Shortly after the victory of Waterloo in 1815, the British Institution offered a premium of 1,000 guineas for the best allegorical picture commemorating the triumph of Wellington. The leading artists in England competed. James Ward, R.A., gained the prize, but being too large to hang his painting was rolled up and placed in Chelsea Hospital. Shown above is the painting entered by J. M. W. Turner, R.A. Seen in it are the newly-finished tomb to General Picton who fell in the battle ; the large central monument to George III, the large canopic jar with eagle head typifying Napoleon ; and symbolical features commemorating Wellington's victorious career—the elephants his Indian experiences, the Sphinx and Sekhet figures his Egyptian, and Roman remains his Peninsular, etc. An article on the painting, which has not previously been published, appears on page 582.

NOTES AND NEWS

Evacuation and Rating.

THE effect of evacuation on rating is causing a good deal of disquietude in some boroughs where dwelling-houses have been closed down, their owners having transferred their families to the country. Where these houses contain furniture, they continue to be liable for charges, with the result that in many cases owners are storing their furniture and effects. By this act, local rates, water rate and Schedule A income tax are saved to the individual.

Unfortunately, these savings are transferred to the shoulders of the remaining ratepayers, and will, no doubt, be reflected in a future increase in rates. If this seems unfair, it must be remembered that individual householders who have evacuated from the towns are paying rates and Schedule A elsewhere, either directly or indirectly, and that it is equally unfair that they should be expected to duplicate these charges, the more especially as, in evacuating their families, they are acting on Government advice.

It would seem both sensible and equitable that Borough Councils should remit part of the rates and the Inland Revenue part of Schedule A tax where such evacuation has taken place. It appears, however, that rating authorities have no power to take this step, and so the process of removal and storage goes on, to the loss of the municipality and the residual ratepayers and the benefit only of the repository keepers. It seems essential that that section of the Rating and Valuation Acts which precludes allowance being made in special circumstances should without delay be repealed for the duration of the war.

Sir Connop Guthrie and B.I.N.C.

WE understand that Sir Connop Guthrie has been in touch with the President of the Building Industries National Council and that an announcement on the subject may shortly be expected.

Sir Connop Guthrie, Bart., K.B.E., was recently appointed by the Prime Minister to undertake a continuous review of the whole position of the building industry, including civil and industrial needs, for the Government.

The R.I.B.A. War Executive Committee.

THE following have been appointed to serve as the War Executive Council of the Royal Institute of British Architects: Mr. E. Stanley Hall, Mr. W. H. Ansell, Mr. L. Sylvester Sullivan, Mr. Hubert Lidbetter and Mr. Charles G. Soutar; with the following Members of the Council: Messrs. C. F. Bates, T. A. Darcy Braddell, A. C. Bunch, R. A. Duncan, Professor W. G. Holford, Messrs. A. H. Moberly, Norval R. Paxton, and C. G. Stillman, with Mr. Edward Maufe and Mr. Howard M. Robertson, Vice-Presidents.

It is not proposed that the Committee shall meet on fixed dates but as often as is necessary and possible.

Oxfordshire Architects: Appeal to Oxford City Council.

THE Oxfordshire Society of Architects has written to Oxford City Council stating that the architects of Oxford, with scarcely any exceptions, were now totally unemployed. They were anxious to assist in any capacity (not necessarily technical) to forward the necessary reorganisation consequent on the war, to enable them to discharge their civil liabilities. The profession of architecture, it was stated, entailed the selection and ordering of goods and services, the organisation of their disposal and use and the subsequent accountancy. Architects were used to the control of men and all the intricate organisation whereby different trades were caused to work harmoniously. It was believed that they possessed the ideal qualifications needed in reorganisation, and that the City Council, in making new appointments, might be well served by their members. Distress among the profession, unless alleviated, would shortly become acute, and valuable services were being lost to the community.

The letter was referred to the committee dealing with special works.

Building Societies: Provisions of New Act.

THE Building Societies Act, 1939, which is not a special war-time measure, comes into operation on November 1 next. The Act concerns advances made by building societies, the security to be taken, the payment of commissions, and the liability of directors.

Various forms of notice have been prescribed under the Act in rules made by the Chief Registrar of Friendly Societies. The notices are for the use of societies and others, such as vendors of property who have so-called "pool agreements" with building societies, in connection with transactions which take place on and after November 1. The only form which will be printed officially is the return relating to sales and transfers, which must in future be submitted to the Registrar by a building society, with its annual account and statement. This will be obtainable from the Registrar or the Stationery Office. The other forms will not be officially printed, but must be reproduced from the statutory rules by the societies or persons concerned.

Copies of the Act (price 4d. net) and of the rules referred to above, which are cited as the Building Society Rules, 1939 (price 2d. net), may be purchased direct from the Stationery Office or through any bookseller.

The Value of Tradition.

FROM a contemporary:—

"Messrs. Ferris and Puckridge, Chartered Surveyors (founded by Samuel Ferris in 1795), having successfully survived the Napoleonic, Crimean, Boer, and Great Wars, are continuing their practice at 79, Queen-street, E.C.4, and branches."

The Royal Sanitary Institute: New Chairman.

MR. PERCIVAL T. HARRISON, M.Inst.C.E., Borough Engineer and Surveyor of Finchley, has been elected Chairman of the Council of the Royal Sanitary Institute, and assumed office at the beginning of October.

L.C.C. Housing Work: Restriction of Expenditure.

IN conformity with the instructions of H.M. Treasury as to the restriction of expenditure generally, and of the Minister of Health as to action to be taken in relation to normal housing work, much of the Council's building and other works in progress will be slowed down or stopped. Projects which have not yet been commenced will be undertaken only in exceptional circumstances.

Acquisition of land under the Green Belt scheme will proceed as far as possible.

Professional Announcements.

Owing to the conditions created by the war, MESSRS. RICHARDSON AND GILL have agreed to terminate their partnership as from September 1 last. Letters dealing with their respective works should be addressed to Professor A. E. Richardson, A.R.A., F.R.I.B.A., and Mr. C. Lovett Gill, F.R.I.B.A., at 41, Russell-square, London, W.C.1, unless otherwise instructed.

MR. J. BARRINGTON-BAKER, A.R.I.B.A., A.M.I.Struct.E., of Messrs. C. E. Blackbourn and Partners, architects, 26a, Finsbury-square, E.C.2, has transferred his address to Grove Lodge, Regent's Park-road, Finchley, N.3.

MR. JOHN LEECH, F.R.I.B.A., architect and ecclesiastical surveyor for the diocese of St. Albans, has moved to High Ridge, Kinsbourne Green, Harpenden, Herts (telephone: Harpenden 3563).

MR. H. VICTOR KERR, F.R.I.B.A., has taken into partnership his senior assistant, Mr. G. B. Colbourn, and the firm will assume the title of Victor Kerr and Colbourn. The practice has now been transferred to 23, Clifton Hill, St. John's Wood, N.W.8 (telephone: Maida Vale 8751).

IN 1914.

The Nelson Column.

WE may dislike Nelson's Column in itself, we may be perfectly sure that we could draw one of improved proportion, and we may be ready to do so forthwith in a public competition so soon as this conflict of the nations subsides in victorious exhaustion and peace; but, frankly, we are not prepared to pull down Railton's stone candlestick.

The Inspiration of Modern German Architecture.

"Heaven and my house have given you all that is on German lands and what you can obtain by force or other means from other countries. It lies with you, Germans, to glorify my name and country and to make every structure raised by German hands a monumental and sacrificial offering to the glory of the Hohenzollerns."

(*From an Imperial Rescript.*)

The Architects' War Committee.

The Selection Committee, in co-operation with the allied societies, are preparing lists of architects in all parts of the country competent to undertake works which, so far as can be foreseen, are likely to be required by the Government.

FROM *The Builder*, OCTOBER 23.

WAR DAMAGE TO BUILDINGS

ARCHITECTS' PANEL FOR REPAIRS.

UNDER the two Emergency Acts of Parliament, "Esssential Buildings and Plant (Repair of War Damage) Act" and the "Housing (Emergency Powers) Act," borough councils and other local authorities are empowered to arrange in suitable cases for the carrying out of temporary or first-aid repairs of damaged buildings, and, after consultation with the owners and the Ministry of Health, for more permanent repair work to be executed, as may be necessary to reduce to a minimum the discomfort of the occupants, or their removal, and so prevent a housing shortage or lack of buildings essential for public welfare and safety.

We reported in our last issue that the Borough Council of St. Marylebone have formed a Builders' Pool in order to co-ordinate effectively the building resources of the borough. It may now be stated that the Council some months ago appointed seven prominent architects practising in the borough to advise them upon the construction of public and other air-raid shelters. These architects, although individually appointed, have formed themselves into a Panel in order to give the most effective service.

The Borough Council have also engaged these architects to advise them upon the work of executing repairs, etc., under the Emergency Acts. With the consent of the Borough Council the architects have therefore formulated the following scheme, which is ready to be put into immediate operation after an air raid causing damage in the borough.

A central control has been arranged staffed by one of the architects and his staff. Upon receipt of information from the Council that damage has occurred to buildings in the borough, each of the seven architects is allocated an area in which to operate, and will proceed immediately to make an inspection of the damage and complete the report forms required by the Borough Council.

At such inspections the buildings will have to be arranged into groups according to the extent of the damage. The report will include damage to the contents.

At the first survey a member of the Builders' Pool will attend to inspect the damage. The architect will report to the Housing Officer, who will decide as to the buildings to be repaired, and will issue instructions as to first-aid repairs.

After consultation with the owners or the person in control of the premises, more permanent repairs in certain circumstances may be carried out on written instructions from the Housing Officer of the Borough Council and with the approval of the Ministry of Health. When the works are finally completed accounts will be checked by the architects and certified by the Housing Officer for payment. Adequate supplies of materials are assured.

The members of the Panel are: Messrs. J. Stanley Beard and Bennett, F./L.R.I.B.A.; Mr. Donald Hamilton, F.S.I., L.R.I.B.A.; Mr. P. G. Freeman, A.R.I.B.A.; Messrs. Marshall and Tweedy, FF.R.I.B.A.; Mr. Denis Poulton, A.R.I.B.A.; Messrs. Sutcliffe, Taylor, Farmer and Millard, FF.R.I.B.A.; and Messrs. Welch and Lander, FF.R.I.B.A.

MR. H. S. GOODHART-RENDEL, P-P.R.I.B.A.

THE PRESIDENTIAL PORTRAIT, BY AUGUSTUS JOHN, R.A., WHICH WAS FORMALLY PRESENTED AT THE MEETING OF THE R.I.B.A. COUNCIL ON OCTOBER 9.

TURNER'S "WATERLOO" PAINTING

By C. D. HAWLEY.

THE painting by J. M. W. Turner, R.A., of which a reproduction appears on page 580, is one of unusual interest to architects. It was for many years privately owned, and was eventually acquired by a London art dealer shortly after the Great War, who has since disposed of it to a private purchaser. The original is a highly finished water-colour exhibiting the characteristic technique of the famous artist, the atmospheric softness of the distance, and the masterly suppression in places of the architectural detail being markedly in evidence. The date of the picture is *circa* 1815-16, and is precisely the painter's style of the period.

The subject is a competitive one, and there can be little doubt that it was inspired by the British Institution's offer of one thousand guineas for the best allegorical picture commemorating the triumph of Wellington at Waterloo. The leading artists in England competed. James Ward, R.A., took part in the competition and gained the prize, but being too large to hang, the painting was rolled up and placed in safe custody in Chelsea Hospital. Turner may have intended to enter his picture in the competition or merely painted it as a labour of love. The picture is fully signed by the artist.

The subject is, of course, purely allegorical, representing Turner's conception of a suitable architectural monument to commemorate one of the greatest events in English history. The name "Waterloo" is inscribed in the centre of the great pile of buildings. The architectural grouping is one of great magnificence, and the style, as will be readily seen, is in full accord with the prevailing characteristics of the period. A number of other features in the foreground are particularly impressive and of great interest as illustrative of the victorious career of the Duke of Wellington, *e.g.*, the elephants his Indian experiences, the sphinx and Sekhet figures his Egyptian campaign, and the sandalled foot and other Roman remains the Peninsular War.

The then newly finished tomb to General Picton who fell at Waterloo, the large central pillar monument to George III, the spectacular head of the whole business, the large canopic jar with eagle head typifying Napoleon, etc., all serve to enhance the allegorical purpose of the design, and reveal in a remarkable degree the imaginative genius of the artist. Perhaps in no other example of his work is the individuality of Turner's style so clearly expressed. An artist of lesser calibre, it may well be supposed, would have curbed his imagination and have hesitated before offering to the public a scheme for an architectural monument that would absorb three Vaticans, and such as no architect of average attainments would have conceived.

THE PROVISION OF INDUSTRIAL SHELTERS

THE USE OF REINFORCED CONCRETE

FROM A CORRESPONDENT.

SINCE the outbreak of war, employers throughout the country have considerably accelerated their A.R.P. programme in order to meet the menace of a possible air attack. It is the intention of this article to suggest a few methods by which air raid shelters for factories and industrial organisations can be constructed, with particular reference to the strengthening and adaptation of basements.

It should be clearly understood that whatever type of shelter is decided upon, it will involve expense, and unless the protection given achieves its object the money will be wasted. It is obvious that the degree of protection ultimately provided will depend largely upon the size of the factory itself, and also on the importance of the locality in which it is situated. For some areas which contain no military objectives and no concentrated form of industry, what is usually described as splinter-proof protection should be sufficient, whilst in other and more vulnerable districts something between this and maximum security would appear to be desirable.

General Principles.

No matter what form of protection is finally chosen, certain general principles must be observed. For example, the shelter must be easily accessible to all, first-aid and lavatory accommodation should be available, and should the shelter be big enough to house a large number of persons, it should be divided into inter-communicating departments, each capable of housing about 100 people. In addition, steps should be taken to enable the shelter to be rendered proof against a gas attack.

Unless the factory be situated in an area which can be considered to be a definite objective for enemy bombs, the possibilities of a direct hit can be ruled out, as the chances of this happening are probably too small to justify the heavy cost of providing bomb-proof protection. The main dangers with which to contend are blast, flying splinters and falling debris. Nevertheless, it may be as well to give brief details as to the degree of protection necessary to resist a direct hit from, say, a 500-lb. H.E. bomb.

It has been estimated that full protection from such a bomb requires three or perhaps four essentials—a burster slab to cause explosion if possible; a cushion of earth, sand or rubble; a distributing slab, a further cushion, and finally the shelter roof proper. Two examples of the cushion type may be quoted as an illustration. The first consists of a 24-in. concrete roof, 18 in. of rubble, a layer of concrete 18 in. thick, 6 in. of sand, and finally 6 in. of concrete, giving a total thickness of 6 ft. The second design has a total thickness of 10 ft. and comprises a 36-in. concrete roof to the shelter, on which is superimposed 36 in. of sand, a layer of concrete 30 in. thick, and finally 18 in. of earth.

On the other hand, it cannot be too strongly emphasised that should the bomb penetrate the burster layer and detonate beneath under confined conditions the disruptive effect would be much increased. This fact constitutes a serious drawback to the "sandwich" theory, and those contemplating the design or provision of bomb-proof shelters would be well advised to obtain from H.M. Stationery Office copies of A.R.P. Handbooks Nos. 5 and 5A. The latter contains diagrams for bomb-proof shelters involving thicknesses of from 5 ft. to 7 ft. 6 in. of solid concrete overhead, without any form of "sandwich."

Since A.R.P. became a part of the national life there have been dozens of different types of shelter constructed. New offices and shelters built by a cement company in the country are shown in Fig. 1. During hostilities the essential office staff migrate to these offices, and in the event of aerial bombardment take refuge in the shelters constructed beneath them. In Fig. 2 is given a view of the interior of one of the shelters.

There are hundreds of factories throughout the country which have little or no spare ground on which a shelter may be constructed. Obviously, therefore, a refuge will in such cases have to be built in the basements of existing buildings.

Let it be assumed that air raid shelters are to be provided at a factory or industrial establishment, and that there are existing basements in some of the buildings. It is suggested that the sequence of action should be as follows:—

Determine the maximum number of persons to be accommodated. The space required in shelters of various types is given in the "Revised Code, August, 1939 (Section 13 of the Civil Defence Act, 1939)." This publication may be obtained from H.M. Stationery Office, and should be in the possession of everyone designing shelters, as it contains the official recommendations on the whole subject, including standards of protection, etc. As regards space required, a summary is as follows:—

Shelters for 12 people or less—3¾ sq. ft. per person.

Trench shelters open at both ends—3¾ sq. ft. per person.

Shelters for more than 12 people other than trenches ventilated naturally, or mechanically at the rate of not less than 150 cu. ft. per hour per person, and not permanently sealed against gas.

6 sq. ft. floor area
50 cu. ft. capacity.
25 sq. ft. of area of all walls backed by earth, other walls not less than 8½-in. thick floor, ceiling or roof.

Floor area may be reduced if shelter is mechanically ventilated at 450 cu. ft. per hour/person, and emergency ventilation is provided for. Floor area of 3¾ sq. ft. per person is then sufficient. The same applies in the case of shelters which are unusually massive. The latter must be specially authorised.

Unventilated shelter for more than 12 persons sealed against gas—

not less than 6 sq. ft. floor area
not less than 50 cu. ft. capacity
not less than 75 sq. ft. of surface area of all walls backed by earth, other walls not less than 8½ in. thick, floor, ceiling or roof. Floor area will include area covered by seats. Trench shelter must have horizontal floor and be at least 6 ft. high.

There is also a very useful Home Office A.R.P. publication entitled "Provision of Air Raid Shelters in Basements" (Memo.

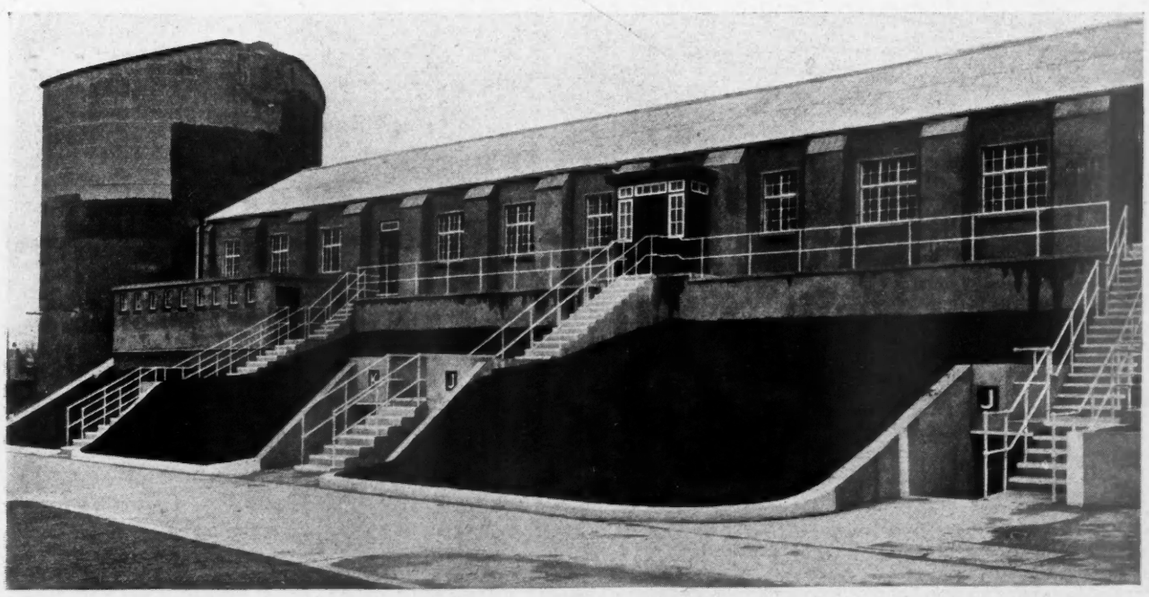


FIG. 1—OFFICE ACCOMMODATION WITH SHELTER BELOW.

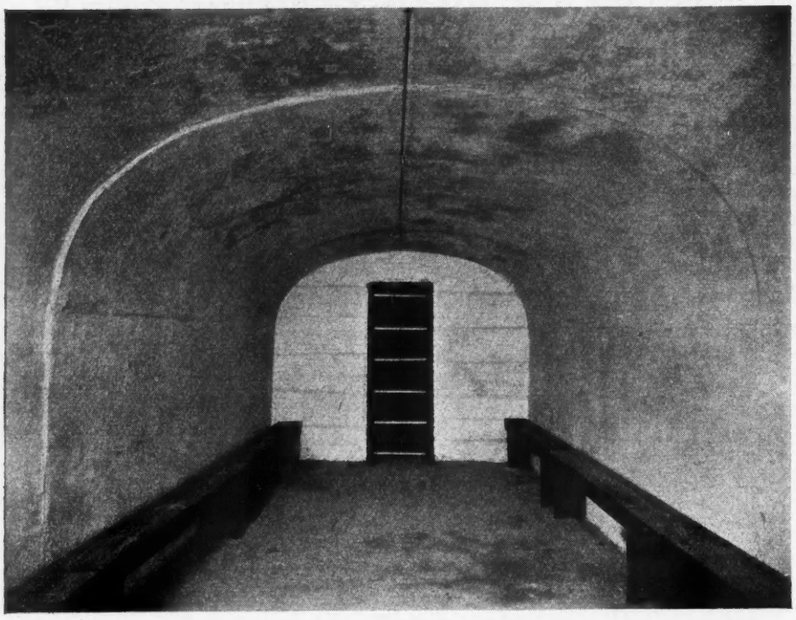


FIG. 2.—INTERIOR OF SHELTER BELOW OFFICE ACCOMMODATION

No. 10); a copy of this also should be obtained from H.M. Stationery Office.

Planning of Shelters.

If there is any choice, the shelter should be under the centre of the building rather than against the outer walls, and it should not be located near boiler rooms or similar places which might in themselves constitute a risk. Similarly, positions below large water tanks, heavy machinery, etc., which might be dislodged and crash through the roof of the shelter, are undesirable. Central corridors are obviously advantageous, as the smaller the span of the ceiling the greater its strength, or the less the work involved in increasing its strength. If, as is often the case, a basement is only a basement with reference to street level, all outside walling projecting above ground level should be splinter-proof. This may be done with mass concrete 15 in. thick, or reinforced concrete 12 in. thick. Another factor is the amount of walling that may have to be constructed to enclose the required space and to form gas locks, lavatory accommodation, etc. Emergency exits are highly desirable, and should be designed to ensure as far as possible against the risk of blockage by debris; reinforced concrete underground passages leading to the surface well clear of buildings suggest themselves. Daylight is often admitted to basements under city buildings through an outside shaft and glazing in the pavement; special gas- and splinter-proof fittings are on the market for such pavement lights, and are designed to serve as emergency exits from basement shelters.

The economic strength for the roof of a basement shelter (*i.e.*, the floor of the ground floor above) to give protection from falling debris naturally depends upon the nature of the building and the number of storeys above. Experience in Spain has shown that a building having solid load-bearing walls is much more likely to be demolished by blast or a direct hit by an H.E. bomb than a reinforced concrete frame building: the latter stands up, even if part of the framework is damaged, and the weight of the debris, composed of light panel walling, floor material, etc., is much less than that arising from the collapse of a solid type of building. It is obvious, therefore, that to support the weight of debris which might fall on it the immediate roof over shelter accommodation, or what may be termed the "demolition floor" of a building. need not be so strong in a framed building as in a structure having solid load-bearing walls. The Home Office recommend (see Revised Code) that for framed buildings the debris load should be taken as 200 lb. per sq. ft., irrespective of the number of floors above; but for unframed buildings, *i.e.*, those with load-bearing walls, the suggested debris load in lb. per sq. ft. are 200 for two floors over, 300 for three or four floors over, and 400 for more than four floors over. These figures are in addition to the normal live load, and in designing "demolition floors" it should not be forgotten to add the latter.

The Distribution of Local Loads.

In the following table, which was compiled by Mr. L. Scott White, M.Inst.C.E., M.I.Struct.E., similar reinforcement is provided in both directions for the purpose of distributing the effects of heavy local loads due to falling masonry, etc. Steel fabric reinforcement of equivalent value may, of course, be used instead of M.S. rods if desired. Some form of permanent shuttering on the under side of "demolition floors" will prevent risk of the soffit spalling under impact of falling debris, etc.

If the flooring above can be taken up, a plank and plaster ceiling carried on joists can be strengthened conveniently by filling in with reinforced concrete between the joists, possibly adding a main girder below to reduce the span of the joists. Alternatively, the old ceiling can be replaced entirely in reinforced concrete designed to give the required strength, in which case concrete columns with splayed reinforced capitals and footings can be incorporated as part of the design.

Basement Shelters.

As regards the outside walls of basement shelters, these should be capable of taking all horizontal forces even when the load on them is reduced by the collapse of the walls above them; the strength of external walls will be much increased by all beams, etc., spanning between them, provided there is rigid connection between roof and walls. Apart from this, the walls should be of sufficient strength to support safely the shelter roof plus its maximum emergency load. For outside walls of basement shelters 12 in. of reinforced concrete, or the equivalent, should be regarded as the minimum. If a portion of a basement is to be enclosed to form a shelter the walls may be required to assist in the strengthening of the ceiling by bearing part of the load, in which case remarks concerning columns given above apply.

The ability of the ground under the foundations to take the extra superload should not be overlooked: a reinforced concrete floor not only adds strength by tying the walls together, but also gives better distribution of the load on the foundations. It is recommended that in the design of concrete basement shelters to be incorporated in the plans for new buildings, the floor should be not less than half the thickness of the shelter ceiling (with a minimum of 6 in.) and with reinforcement, placed 2 in. from the upper surface, appropriate to the thickness as shown in the above table.

Other points to be considered in adapting a basement to serve as an air raid shelter include water-tightness — the

R.C. SLAB "DEMOLITION FLOORS" OR ROOFS OF SHELTERS WITHIN BUILDINGS.

(1) The design load includes the normal live load plus the "demolition load," and is in addition to the weight of the slab.

(2) The reinforcement is M.S. rods (Max. tension 18,000 lb. per sq. in.) placed in the bottom of the slab, with 1-in. cover, and is spaced at 6-in. centres in both directions, forming a grid. Steel fabric reinforcement of equivalent value may be substituted, if desired.

(3) Proportions of concrete of ordinary grade: 1 : 2½ : 4. Max. compression in concrete 750 lb. per sq. in.

(4) Slabs free-ended. Modular Ratio 15. Bending Moment B = WL ÷ 8.

Design Load lb. per sq. ft.	6-ft. Span.		8-ft. Span.		10-ft. Span.		12-ft. Span.		16-ft. Span.		20-ft. Span.	
	Inches Thick	Inches Dia. M.S. Rods.	Inches Thick	Inches Dia. M.S. Rods.	Inches Thick	Inches Dia. M.S. Rods.	Inches Thick	Inches Dia. M.S. Rods.	Inches Thick	Inches Dia. M.S. Rods.	Inches Thick	Inches Dia. M.S. Rods.
250	5	½	6	⅝	7	⅝	9	¾	12	⅞	15	1
280	5	½	7	⅝	8	⅝	9	¾	12	⅞	15	1
300	5	½	7	⅝	8	⅝	9	¾	13	⅞	16	1
350	6	½	7	⅝	9	¾	10	¾	13	⅞	17	1
380	6	½	7	⅝	9	¾	10	¾	14	⅞	17	1
400	6	½	7	⅝	9	¾	10	¾	14	⅞	18	1
450	6	½	8	⅝	9	¾	11	¾	14	1	18	1
480	6	½	8	⅝	10	¾	11	⅞	15	1	19	1
500	6	½	8	⅝	10	¾	11	⅞	15	1	19	1⅛
550*	6	½	8	⅝	10	¾	12	⅞	16	1	20	1⅛
600	7	½	9	¾	10	¾	12	⅞	16	1	20	1⅛

* A rule of thumb apparent for this loading is that 1 in. of thickness of R.C. is required for each foot of width of shelter. (L. Scott White.)

levels of existing drains should be investigated—and most suitable means of excluding gas. In sealing up crevices, etc., pipes, conduits and so forth which may be present, should not be overlooked. If mechanical ventilation is to be installed in conjunction with a gas-filtration plant, so long as the plant is capable of maintaining a plenum in the shelter, porosity of the walls and ceiling is of no great moment. If the shelter is to be used as a closed unventilated space and it is considered desirable to reduce porosity, it is logical to treat the outside, rather than the inside, surfaces where possible.

Trench Shelters.

If the necessary amount of space is available, a comparatively simple but very effective form of shelter is the zig-zag trench type. These trenches should be strengthened and made permanent by means of a concrete lining. This may be either of the cast *in situ* type or built up of precast units of one of the many forms now available. Trenches may be provided with overhead cover to give protection from falling bomb splinters, fragments of anti-aircraft shells and debris, in which case they become a form of dug-out or splinter-proof shelter. If the site is waterlogged, making the construction of trenches difficult, an alternative is to build the shelter entirely above ground, in which case, in order to be splinter-proof, the walls should be either of mass concrete 15 in. thick, or reinforced concrete 12 in. thick. A 6-in. thick R.C. roof is sufficient overhead cover. (For further details see Revised Code.)

Should there be a steep hill-side, waste dump, or slag heap available near enough to be reached within 7-10 minutes, shelters affording excellent protection, not only from splinters, blast, etc., but also to some extent from direct hits, depending on the amount of earth overhead, may be formed by constructing galleries. By means of jacking, precast concrete tubes of 72 in. to 90 in. diameter, with ogee joints, can be inserted into the hill-side, thus forming an admirable shelter. Several examples of this form of construction already exist in this country.

It is of interest to recall that plans for above- and below-ground shelters providing protection for 50 people have been given in previous issues of this journal.

COMPETITION NEWS

Municipal Buildings, Margate.

Margate Town Council, at their meeting on October 10, approved the following minute: "Municipal Buildings, Police Station and Courts, Fire Station—The Mayor reported the position with regard to awards to competitors in connection with the designs submitted for the proposed new Civic Centre, and explained the action proposed to be taken in the matter."

We understand that, while the Council have written to the R.I.B.A. for permission to postpone the erection of the buildings, the assessing of the designs, about 30 in number, is progressing. The assessor is Mr. A. F. B. Anderson, S.A.D.G., F.R.I.B.A.

CURRENT COMPETITIONS

New Cathedral, Auckland, New Zealand, for General Trust Board of the Diocese. Sir Giles Gilbert Scott, R.A., F.R.I.B.A. Premiums: £1,000, £400, £200 and £100. Conditions from (a) the General Trust Board, P.O. Box 652, Auckland, New Zealand, or (b) the Secretary, R.I.B.A., 66, Portland-place, W.1 (dep. £1 1s.)	Particulars published in "Builder." Mar. 10	Sending in date. Nov. 15

THE ARCHITECTURAL ASSOCIATION

SPECIAL GENERAL MEETING.

A SPECIAL general meeting of the Architectural Association was held at Bedford-square on October 10, to explain the A.A. activities in the present emergency. Mr. J. Murray Easton, F.R.I.B.A., President, occupied the chair.

The PRESIDENT, after outlining other emergency measures that had been taken, said that the A.A. School had (following representations from the Board of Education) reopened on October 2 outside London, at the Mount House, Hadley Common, with about 124 pupils and a staff of nine, under Mr. Jellicoe. "We believe," said Mr. Easton, "that the School will serve an extremely useful purpose, and that the avoidance of any break in the continuity is absolutely of the first importance." As regards the Bedford-square premises, the social side would be kept up, but it was clear that they must have the very loyal support of all members. By arrangement with the R.I.B.A., the premises would be available also, it was hoped, for such members of the R.I.B.A. as wished to make use of it. It was also hoped to establish a War Information Bureau to help people to find their niche.

Speaking of the "group" system that had been devised, by which groups of architects might be formed under leaders to carry out work for the Government or municipal bodies, the President said that too much hope must not be placed in the scheme. Various authorities answered the explanatory letter in a general way, but Sir James West (H.M. Office of Works) said that he was very interested in the idea. Sir James pointed out however, that he regarded the R.I.B.A. Register as the profession's contribution to war service, and suggested that the A.A. should work with the R.I.B.A. in that matter. As a result of discussing the matter with the Institute it had been arranged broadly that when the R.I.B.A. were asked to nominate people for jobs, A.A. groups would receive consideration in the allotment of them. Members of the Association who would like to join a group should register with the A.A.

Discussion.

In the discussion that followed, MISS JANE DREW asked what provision was being made for women. The PRESIDENT replied that women would be included in the category of men over 30.

In reply to speakers who suggested that the group system should not be confined to men over 30, the PRESIDENT said that since men under 30 were eligible for employment outside the architectural profession, it was felt that those over that age required primary consideration. There was no reason why younger members should not be employed by groups as assistants.

MR. L. H. BUCKNELL suggested that the matter might be left to the discretion of group leaders, and that the primary consideration should be need and not age. This suggestion was noted, as was also another—namely, that men under 30 should be eligible for groups if unfit for or exempt from service with the Forces.

MR. R. J. HERSCH suggested that it might be possible for groups to take over the practices of architects who were called up, thus keeping them alive while they were away.

In reply to MR. GILBERT JENKINS, who asked whether it might be well to carry the scheme further and get the R.I.B.A. to agree to the group system applying throughout the country, the PRESIDENT made it clear that the whole matter had been explained to the Institute, which considered it a very good idea. There would be no attempt to supplant the Register, but while the other allied societies were heartily welcome to adopt the group system for themselves, he did not think it was for the A.A. to do more than tell them that they were perfectly at liberty to take it up.

MR. E. J. WALKER said that while the discussion so far had been on the question of how to distribute work, a more important task for a progressive architectural body would be to discuss how to create it. He suggested that the A.A. should persuade the Government to set aside a certain sum to be paid to architects for working out housing, industrial and other constructional schemes to be put into effect when the war ended.

MR. A. W. KENYON (chairman of the Group System Committee), asked by MR. C. LOVETT GELL what were the possibilities of obtaining work, said that the Government Departments had already done a considerable amount of work employing private practising architects, and every effort was being made to recommend to these Departments that wherever possible architects should be used on their work. It was desirable to be able to offer to these Departments the help of architects as a body, and that was one reason why the group system was of such importance.

In reply to MR. STANLEY HAMP, the PRESIDENT said that five groups had provisionally been formed. So far there were about ten members in each group. The group leaders, so far, were: Mr. Joseph Hill and Mr. P. J. R. Harland; Mr. V. O. Rees and Mr. R. E. Enthoven; Mr. A. W. Kenyon; Mr. J. R. Leathart; and Mr. L. H. Bucknell.

MR. J. R. LEATHART said that the leader would receive no more than the other members of the group for the execution of a job of work.

MR. V. O. REES suggested that while the group would be communal in constitution, working on the division of profit, he thought a small balance might well be paid into a central association fund to help members of the profession who were hard hit by the war.

R.I.B.A. MEMBERSHIP

At a Council meeting of the R.I.B.A. held on Monday, October 9, the following members were elected:—

AS FELLOWS.

R. C. Blampied (Jersey).
J. Cohen (London).
H. C. C. Couldrick (Hove, Sussex).
A. A. V. Montagu (London).
C. H. Rose (Woking, Surrey).
G. W. Silk (Leamington Spa, Warwickshire).
J. C. P. Toothill (Sheffield).
A. R. Twentyman, M.A. (Wolverhampton).
R. B. Walker (Brighton).
D. T. Wallis (London).
J. Williamson, P.A.S.I. (Cardiff).
R. R. Wilson, B.A. (London).
G. G. Winbourne, P.A.S.I. (London).
K. Wood (Woking).
R. Ll. Honey, F.S.I. (Chatham, Kent).
J. S. Johnston (Leith, Scotland).
L. C. Nichols (London).
L. A. Reynolds (Beverley, East Yorks).
W. R. Steel (Luton, Beds.).

(Overseas).

I. Davies (Nairobi).
F. G. B. B. Hawkins (Perth, Western Australia).
A. W. Hodges (Hong Kong).
O. Than (Rangoon).

AS ASSOCIATES.

J. A. Ashworth (L'pool.Sch. of Arch.) (Liverpool).
J. Black (Glasgow Sch. of Arch.) (Airdrie, Lanarkshire).
E. R. Carr (L'pool. Sch. of Arch.) (London).
T. Clokey (L'pool. Sch. of Arch. (Liverpool).
R. H. Coles (Leeds Sch. of Arch.) (March, Cambridgeshire).
M. G. Gilling, Dip. Arch. (L'pool.) (L'pool. Sch. of Arch.) (Liverpool).
J. T. Lupton (Leeds Sch. of Arch.) (London).
T. Mellor (L'pool. Sch. of Arch.) (Lytham St. Annes).
L. Monks, Dip.Arch. (Sch. of Arch., Victoria Univ., Manchester) (Radcliffe, Lancs.).
T. N. Montgomery (Univ. Coll., Dublin) (Dublin).
W. O. B. Morrissey, B.Arch. (Univ. Coll., Dublin) (London).
A. W. Nicol (A.A.) (London).
A. P. Porri (Bartlett Sch. of Arch.) (London).
L. A. Porri, B.Sc. (Bartlett Sch. of Arch.) (London).
J. D. Sephton, B.Arch. (L'pool.) (L'pool. Sch. of Arch.) (Southport).
R. B. Verdon, B.Arch. (L'pool.) Hons. (L'pool. Sch. of Arch.) (Blackpool, Lancs.).

(Overseas).

H. J. Billimoria (Bombay).
D. G. Karanjgaokar (Bombay).
R. R. Sarma (Bombay).
A. E. Welbourn (Adelaide, South Australia).

AS LICENTIATES.

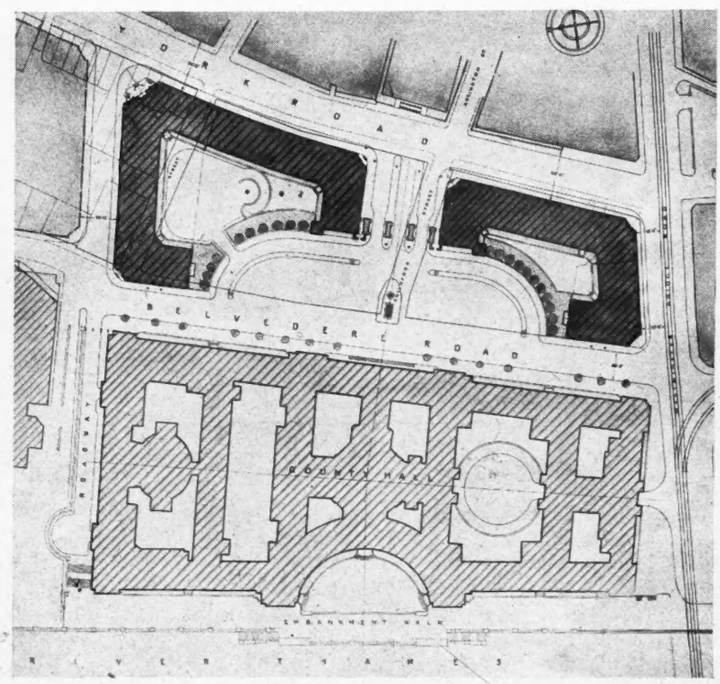
F. G. Chapman (London).
E. P. Cooper, M.C. (York).
P. L. Davidson (Keswick, Cumberland).
H. C. Ellis (Swansea).
R. E. Farquhar (London).
J. F. Jones (London).
G. W. Smith (South Shields)

Photo: Bedford Lemere.

VIEW OF YORK ROAD FRONTAGES.

EXTENSION OF THE LONDON COUNTY HALL, S.E.

MR. F. R. HIORNS, F.R.I.B.A., ARCHITECT TO THE COUNCIL, IN ASSOCIATION WITH MR. E. P. WHEELER, F.R.I.B.A. SIR GILES GILBERT SCOTT, R.A., CONSULTING ARCHITECT.



PLAN SHOWING RELATION OF NEW BUILDINGS TO OLD

ALTHOUGH the final section of the original County Hall building was not completed until 1933, it soon became apparent that the building had become inadequate to accommodate the increasing staff called for. Plans were accordingly made in the department of the Council's architect for the provision of a building of corresponding length to the County Hall (about 750 ft.) to be applied to land adjacent to the latter between Belvedere- and York-roads.

LAYOUT.—The general layout of the scheme was based upon the necessity not to interfere with the natural lighting and other practical considerations affecting the original County Hall. Moreover, the large size and architectural scale of both buildings called for a broad open space to allow for general effect, some car-parking space, and adequate traffic circulation facilities.

CONSTRUCTION.—Both structures have the same number of storeys, the new building being one storey less below the ground and one storey more above. Portland stone is used as the external finishing material, in association with a relatively thin walling of brick that clothes

VIEW OF NEW BUILDING FROM BELVEDERE ROAD.

Photos: Bedford Lemere.

THE NORTH BLOCK, FROM YORK ROAD.

EXTENSION OF THE LONDON COUNTY HALL, S.E.

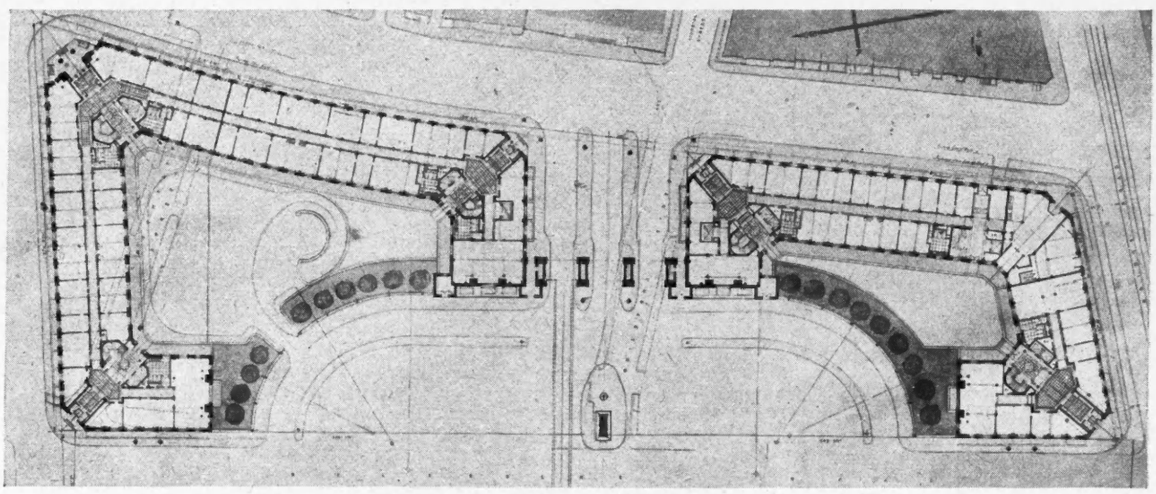
MR. F. R. HIORNS, F.R.I.B.A., ARCHITECT TO THE COUNCIL, IN ASSOCIATION WITH MR. E. P. WHEELER, F.R.I.B.A.
SIR GILES GILBERT SCOTT, R.A., CONSULTING ARCHITECT.

AN ENTRANCE LOBBY.

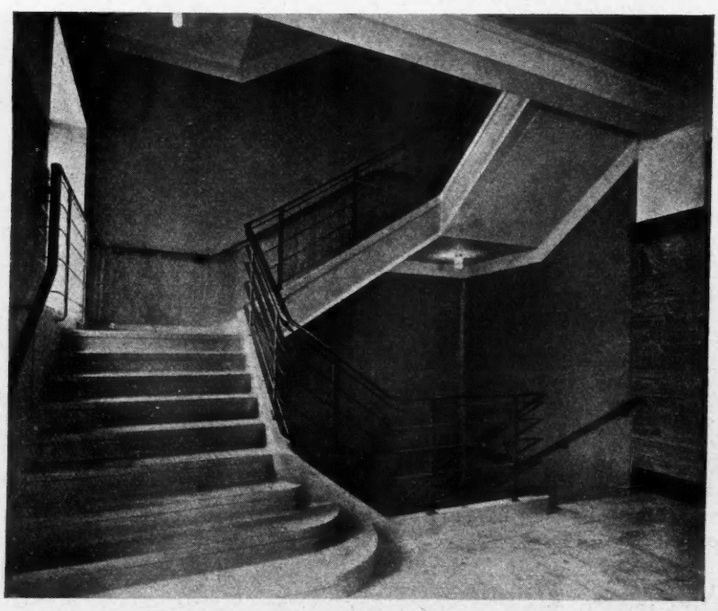
the steel frame construction. In the granite-faced substructure and plinth a feature of some interest is the incorporation of portions of granite from old Waterloo Bridge in the piers of the triple portal of the central carriageways.

The carved column caps and the panels that ornament the lower stage of the central pavilions and screen are the work of Messrs. A. T. Bradford, F. P. Morton, and A. J. Oakley. The decorative metalwork, including the bronze entrance-doors, the large ornamental windows in the pavilions, and the heavy, curved, boundary railing of the central space, has been carried out by Messrs. J. Starkie Gardner, Ltd.; while behind the curved wall and railing referred to are grass areas with trees that should afford some relief to the more formal architectural setting of the building. The garden work has been executed under the direction of Mr. A. R. Mawson, Chief Officer of the Parks Department.

INTERNAL.—As regards the interior of the building, the offices and their communication corridors are treated on a purely utilitarian basis, though an attempt has been made to give a distinctive character and interest to the entrance vestibules and staircases. The vestibules are paved with "Perrycot" Portland stone and the walls lined with Travertine marble and Ancaster stone, relieved by a small amount of low-relief carving executed by Mr. J. B. Spiro. Mr. Percy Smith has been responsible for the lettering, numbering and notice panels throughout.



GROUND-FLOOR PLAN.



A TYPICAL STAIRCASE.

The foundations, street works, electric lighting and lifts, heating installation and engineering services generally, have been carried out under the direction of the Council's Chief Engineer, Mr. T. Peirson Frank, M.Inst.C.E., F.S.I. The steel framework of the building was executed by Messrs. Redpath, Brown and Co., Ltd., and the foundations and superstructure put into execution by Messrs. Higgs and Hill, Ltd., under contracts amounting to close upon £500,000. A list of firms engaged on the work is on page 599. The present portion of the building now nearing completion, is only about half the final size, the estimated cost of the whole scheme being approximately £1,100,000, its capacity being 2,400 persons.

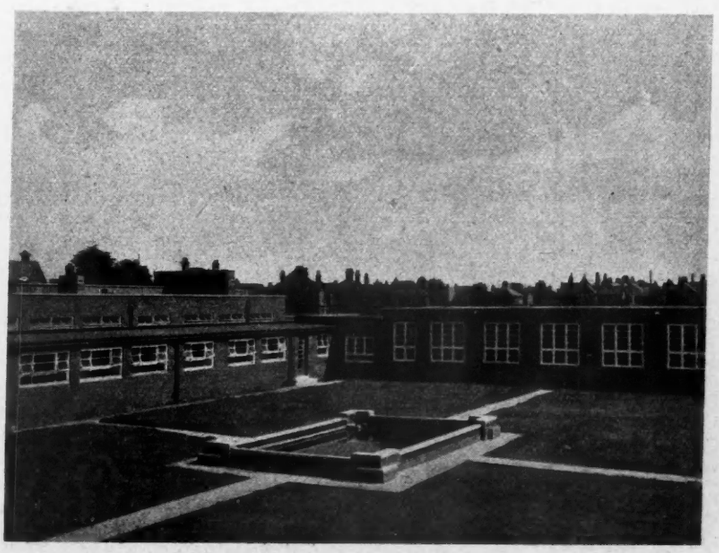
LONDON COUNTY HALL EXTENSION. MR. F. R. HIORNS, F.R.I.B.A., ARCHITECT TO THE COUNCIL.

VIEW FROM SOUTH-EAST.

WILLIAM NEWTON SENIOR GIRLS' SCHOOL, STOCKTON-ON-TEES.

MR. P. F. BURRIDGE, A.R.I.B.A., ARCHITECT.

(Borough Engineer's Department)

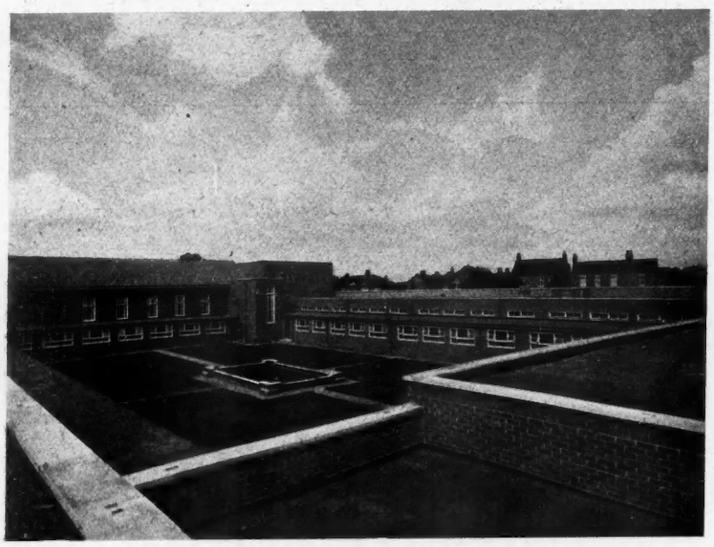


VIEW FROM SOUTH-WEST CORNER OF QUADRANGLE.

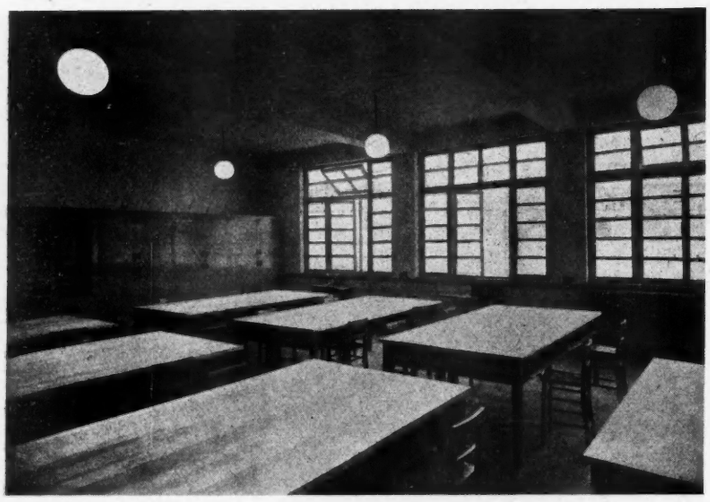
THIS new school at Norton forms part of the reorganisation scheme based on the Hadow Report, which suggests the division of education into two parts—one for children up to the age of 11 and the other for children over that age. In November, 1935, the Corporation purchased from Durham County Council a site, over five acres in extent, in Junction-road, for the proposed school, and in October, 1936, appointed Mr. P. F. Burridge, A.R.I.B.A., of the staff of the Borough Engineer's Department, to be the architect for the project. This is the first school which has been planned in the borough by a member of the staff of the Corporation and erected under his supervision. The school has been named after Alderman William Newton, Chairman of Stockton-on-Tees Education Committee.

The site of the school is 5½ acres in extent, and to obtain a measure of quiet and privacy the building is set back approximately 100 ft., the front land being grassed. The school has a recognised accommodation for 320 senior girls. An asymmetrical plan of the single quadrangle type was considered by the architect to be the most logical solution for a school accommodating one sex. In this connection it will be observed

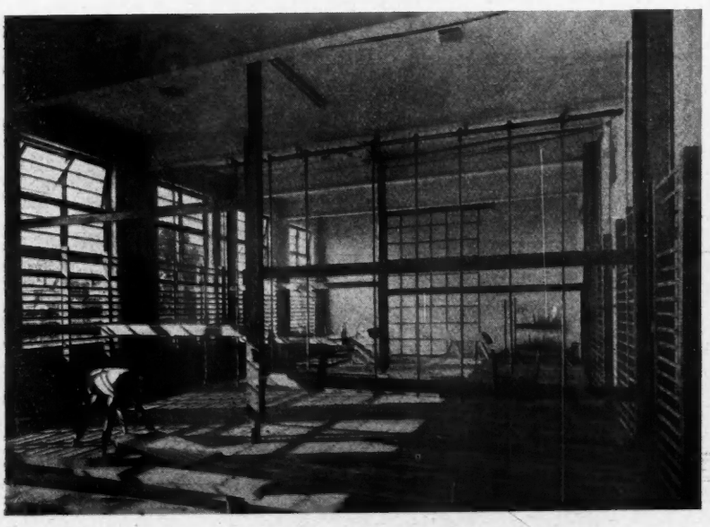
WILLIAM NEWTON SENIOR GIRLS' SCHOOL, STOCKTON-ON-TEES.



VIEW FROM SOUTH-EAST CORNER OF QUADRANGLE.



THE NEEDLEWORK ROOM



THE GYMNASIUM.

that access to the classroom and practical room suites is uninterrupted by the assembly hall and gymnasium. Such good circulation would not obtain in a symmetrical plan.

The northern side accommodates the practical rooms, and the southern side four classrooms and two science rooms. The east end comprises cloakrooms, lavatories and latrines, with pupils' entrance immediately adjacent; while the assembly hall and gymnasium are planned to the west. The main entrance blocks contain headmistress's and medical officer's rooms on the ground floor, and library and staff room on the first floor. The art room is at the north-west corner.

The assembly hall is 1,800 sq. ft. in area, and is approached from the main school entrance, being intercepted by a crush hall of suitable dimensions. The stage is the full width of the hall, giving ample wing space, and has a full acting depth of 15 ft., back across access 3 ft. wide being provided in addition. To enable the provision of a small balcony at the rear of the hall the projection room is planned behind the stage. The gymnasium is 60 ft. × 30 ft. The changing room is planned in such relation to the hall and gymnasium that it may conveniently be used for both theatricals and physical training. The floors of the changing room and showers are of special asphalt tiles, which provide a comparatively warm and non-slip surface.

The art room is 30 ft. × 30 ft. It is planned as a projecting wing to give north and west light. A storeroom, 13 ft. × 7 ft., fitted with sink and drainer, is provided. The room accommodates forty pupils, and is provided with a special continuous rail for the display of Medici prints, which are used for tuitional purposes. The needlework room is 30 ft. × 25 ft., accommodating forty pupils. The craft room is 27 ft. × 25 ft., and is arranged for forty pupils, with tables, sink, bench and cupboards. The domestic science rooms (two) are each 36 ft. × 25 ft., and each is intended to house 20 pupils for tuition in cookery and laundry. The domestic flat is designed as a model flat, to be used solely for tuitional purposes. A front entrance door is provided from the corridor, and access for control is available from No. 2 domestic science room. The flat comprises living-room, bedroom, kitchen, bathroom, w.c., airing cupboard, and coal-store. The library is on the first floor, and includes a lecture- and study-room.

A small kitchen is provided for preparation of food brought by pupils, as it is anticipated that a number will desire to remain on the school premises for luncheon. The kitchen is planned adjacent to the assembly hall, facilities being thus available for the provision of teas for functions when occasion demands.

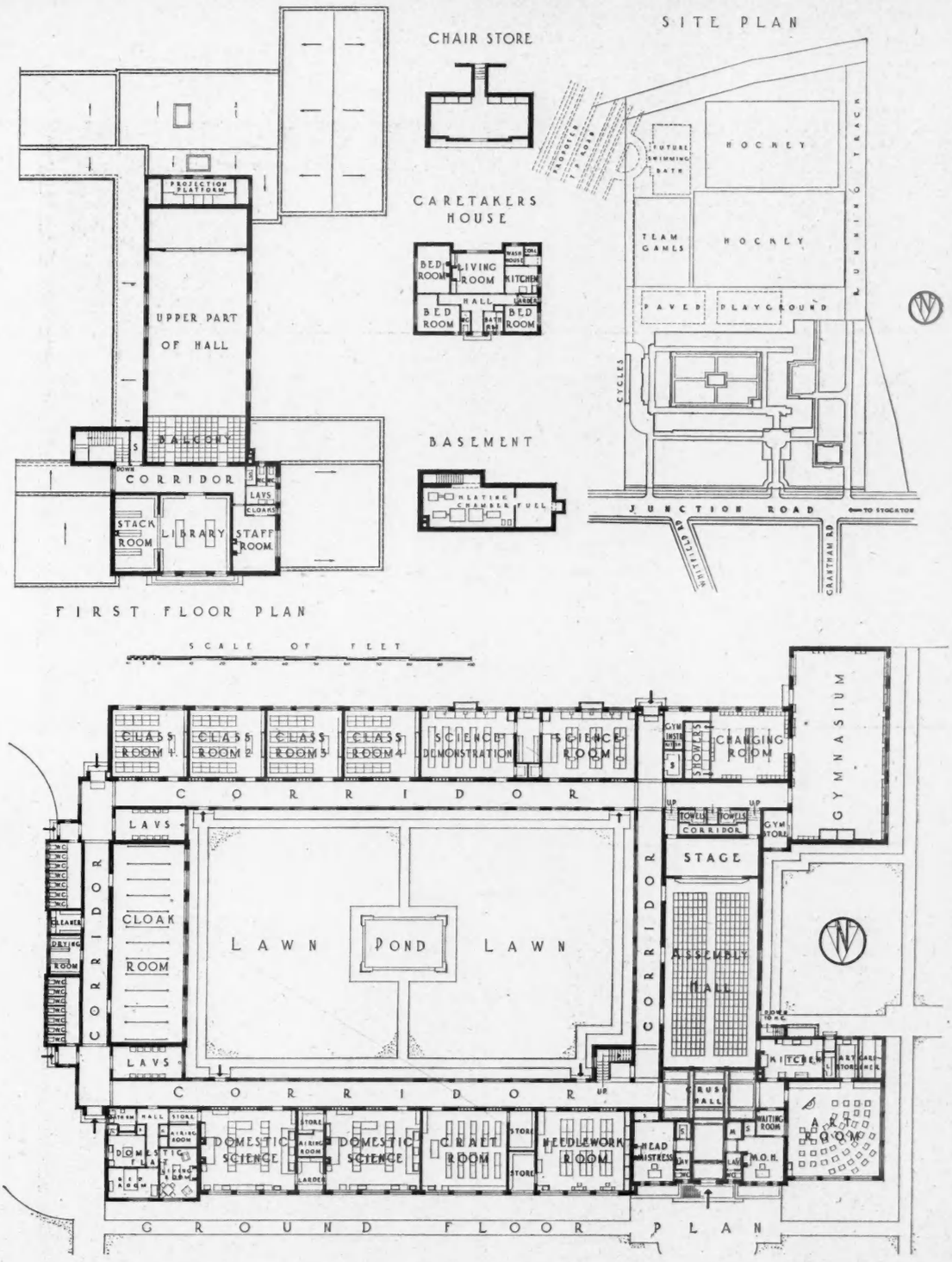
An interesting feature is that the chalk-boards are primrose in colour, blue chalk being used. This, it is contended, gives less strain on the eyes than any other colour combination. Panels of special material are provided in all rooms for pinning drawings, charts, maps, notices, etc.

Each room is designed for a special subject, the pupils thus being in a different room at each change of lesson. This made the problem of storing textbooks somewhat difficult. In the new school it has been solved by the provision for each pupil of a numbered locker built into the thickness of the wall and accessible from the corridor. Where possible, furniture has been built in.

The building is heated by a low-pressure hot-water system, the boilers being fed by automatic stokers thermostatically controlled. A caretaker's house is provided on the site.

Mr. William Thompson was the clerk of works. The builders were Messrs. Brown and Son, Stockton, and sub-contractors and suppliers were:—

Heating, Richard Pickersgill and Son, Ltd.: electric lighting and clock installation, W. Stewart



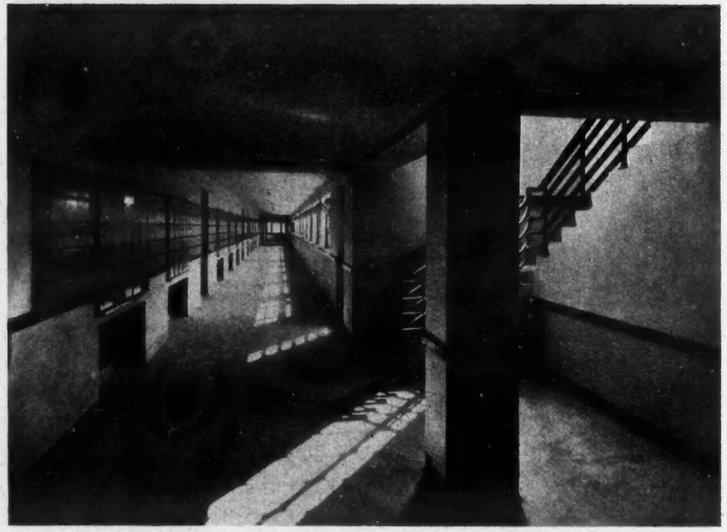
and Sons; electric clocks, Synchronome Co., Ltd.; plumbing, J. M. Guthrie; domestic hot-water supply, E. Dixon Barker and Son, Ltd.; painting, F. Roe; plasterer, Ormston and Co.; tiles, J. C. Edwards (Ruabon), Ltd.; wood block flooring, Hollis Bros.; strip flooring, A. Swales and Co., Ltd.; hollow tile roofs and floors, Bolton and Hayes, Ltd.; fixed furniture, Broadbent and Son, Ltd.; doors, F. Hill and Son; windows, Foster Brotherton and Co., Ltd.; roof covering, Ruberoid Co., Ltd.; gas installation, J. M. Guthrie; dadoes, H. G. A. Crabtree; gymnasium fittings, T. M. Gardiner, Ltd.; dark blinds, Accordo Blinds, Ltd.; roof lights, J. A. King and Co., Ltd.; automatic stokers, Prior Burners, Ltd.; sanitary fittings, J. and R. Howie, Ltd.; valve, Walker Crosweller and Co., Ltd.; facing bricks and roofing tiles, Crossley and Sons, Ltd.; paint, Novel Chemical Finishes, Ltd.; rain-water goods, Vitroflex, Ltd.; asphalt floor tiles, Highways Construction, Ltd.; coloured cement, Cement Marketing Co., Ltd.; ironmongery, Samuel Parkes and Co., Ltd., N. F. Ramsey and Co., Ltd., W. and R. Leggott, Ltd., Parker, Winder and Achurch, Ltd., and James Gibbons, Ltd.; cycle racks, collapsible gates and shower fittings, Parker, Winder and Achurch, Ltd.; metal plaster lath, Richard Hill, Ltd.; copper pipes, I.C.I. (Metals), Ltd.; steel, Dorman, Long and Co., Ltd.; cast stone and flags, Stockton Stone and Concrete Co., Ltd.; fireplaces, Hy. Foster and Morland, Ltd.; cooker hoods, Turners Asbestos, Ltd.; acoustic board, Newalls Insulation Co.; plaster, I.C.I. (Casebourne), Ltd.; glazed blocks and tiles, Attoc Blocks, Ltd.; staircase handrail and balcony rail, James Gibbons, Ltd.; primrose chalk boards, North of England School Furnishing Co.; ironwork, J. H. Callendar and Sons; pipe fittings, Kay and Co.; and grilles, Trane and Co., Ltd.

WILLIAM NEWTON SENIOR GIRLS' SCHOOL, STOCKTON-ON-TEES.

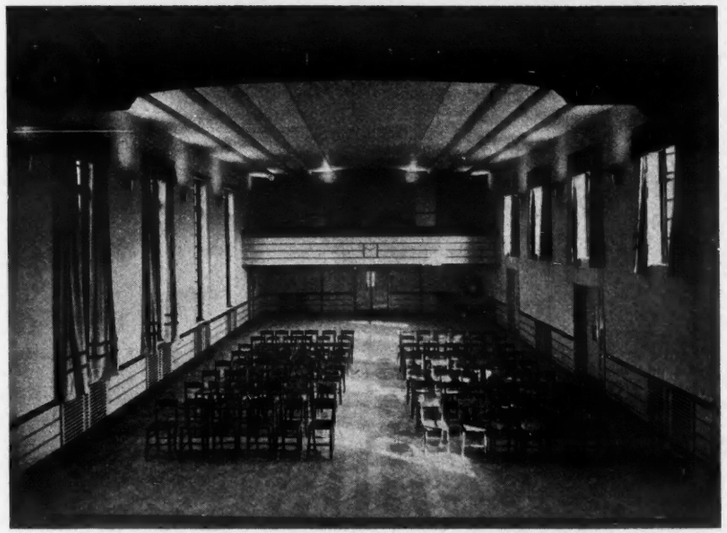
MR. P. F. BURRIDGE, A.R.I.B.A., ARCHITECT.

THE LIBRARY AND STACK ROOM.

THE ASSEMBLY HALL, FROM GALLERY.



STAIRCASE AND NORTH CORRIDOR.



THE ASSEMBLY HALL, FROM STAGE.

WILLIAM NEWTON SENIOR GIRLS' SCHOOL, STOCKTON-ON-TEES. MR. P. F. BURRIDGE, A.R.I.B.A., ARCHITECT.

THE TECHNIQUE OF SOUND INSULATION

PART II—DISCONTINUOUS CONSTRUCTION.

NOTES FROM THE INFORMATION BUREAU OF THE BUILDING RESEARCH STATION.*

Preliminary.

THE present note is the second part of a review of some points of interest in the technique of sound insulation, which will be dealt with more fully in a forthcoming report by the Building Research Station.†

In the first part [*The Builder*, September 22] sound insulation in Rigidly Continuous Structures was discussed, and reasons were given why it was impossible to achieve an insulation in such buildings greater than that which one might expect from, say, 4½-in. to 9-in. brickwork. It was also shown that while this was sufficient for certain types of occupancy, there were many cases where it was not adequate, and that recourse must then be had to a new method—the introduction of discontinuity.

In this second part it is proposed to give some account of the investigations into the construction and behaviour of discontinuous construction, and to describe briefly one or two of the applications of the new technique recommended for practice.

* Crown Copyright Reserved.

† Sound Insulation in Buildings. Practical Notes for Architects and Builders. H.M. Stationery Office.

Experimental Work.

Very early in the joint researches by the National Physical Laboratory and the Building Research Station, it was realised that experiments on *individual* walls and floors could never by themselves lead to a comprehensive solution of the problem, since it was known that, in some cases, at least, a great deal of sound travelled by indirect paths in buildings, of which such tests took no account. It was decided, therefore, that it was necessary to carry out tests in a building in which all the paths for sound transmission could be controlled and studied. Fortunately, about this time a very suitable light steel-framed structure in the grounds of the Research Station became available, and the opportunity was seized to commence work there.

The building has two storeys, and at present the basic structure consists of the light steel frame, floors and roof of pre-cast hollow concrete blocks, and outside walls of 4½-in. brickwork. Stairs are provided on a frame detached from the building.

Up to the present time, the experimental work has involved the construction of two rooms on each floor, each with a single large window and double doors. These rooms were the special feature of the building, for they were, of themselves, complete boxes, resting on rubber blocks, and thereby detached as completely as possible from the structure and from one another. The floors of the rooms were of concrete, of the floating type patented by the Research Station*; the walls of the rooms (as distinct from the outer walls of the building) were of clinker concrete blocks, plastered, and were carried upon the floating floors: the ceilings were of two-coat plaster on wood laths, carried by wood joists which were, in turn, supported by the box walls of the room. Windows and doors were double, the inner elements in each case being in the box structure, and the outer in the building frame itself.

The insulation which was achieved between neighbouring rooms, vertically or horizontally, with the building in this state was of a very high order indeed, being equivalent to some six to ten feet thickness of brickwork, although the total actual weight of the structure had not been materially increased. From the nomogram given in Part I of the Note it will be apparent that insulation of this order is far superior to that obtainable in "continuous" structures.

Various modifications were then tried, directed to simplifying the structure without losing this high insulation. For example, it was found possible to dispense with double doors and windows in certain cases without sacrificing any appreciable degree of sound insulation. At the present time, studies are being made of ceiling constructions. Later, additional work will be done on the floors, and it is hoped to achieve further simplification in this direction.

It should perhaps be mentioned that the idea of a box-like construction is by no means a novel or untried one. For example, reference is made by Davis and Kaye, in their book "The Acoustics of Buildings," to a case where the idea was carried out quite successfully in a building erected as long ago as 1913. What is new in the recent work is the study which has been made, under controlled conditions, of the possibilities of this type of construction or of the general methods of introducing structural discontinuities, with a view to advancing fresh recommendations for construction which would be within the region of practical politics, depending on the circumstances of different types of cases.

The tests made with this building have made it possible to visualise treatments of varying efficiency for all types of problems where an insulation in excess of that obtainable in rigidly continuous structures is required, and in the report now in the press suggested applications of the technique have been described to deal with such typical problems as flats, hospitals, semi-detached houses and so on. In addition to this, sufficient information of a fundamental character is given to enable architects readily to devise other treatments for individual problems which arise. It is not possible to describe in full here the suggestions for treatment of any of the problems dealt with. The following, however, may serve to indicate the approach which has been adopted in dealing with one or two of them.

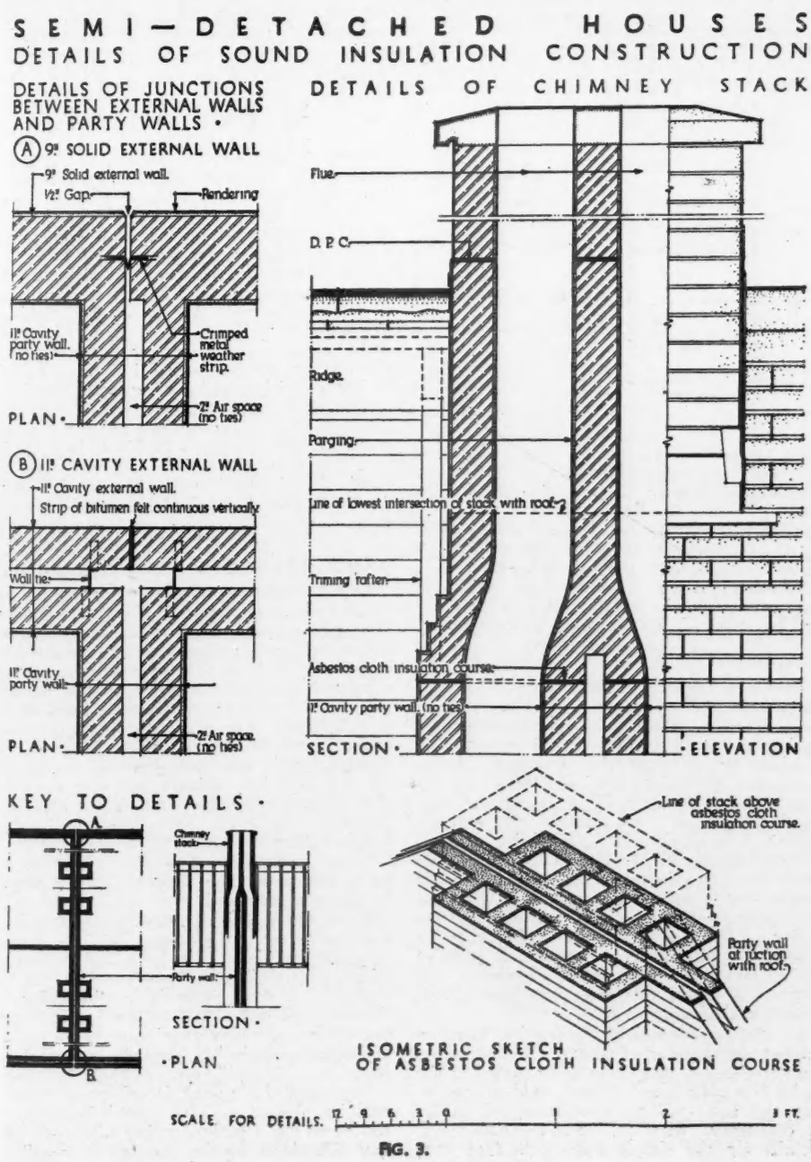


FIG. 3.

EXAMPLES.

1. Semi-detached Houses.

Normally sound is transmitted not only by way of the directly intervening party wall, but by the common walls which form the front and rear of the houses. For this reason any superficial treatment of the party wall alone is doomed to failure. This path, of course, is one which has to be treated with others, and the obvious procedure seems to be to divide the party wall into two separate leaves, and to interrupt the continuity of the common flanking walls at this point.

Methods for doing this are shown in Fig. 3, together with details for the treatment of the party wall and its junction with the outer walls, whether the latter are of solid or cavity construction. The larger detail deals with the point where the chimney, divided by the cavity in the party wall, is joined together

* British Patent No. 466,044.

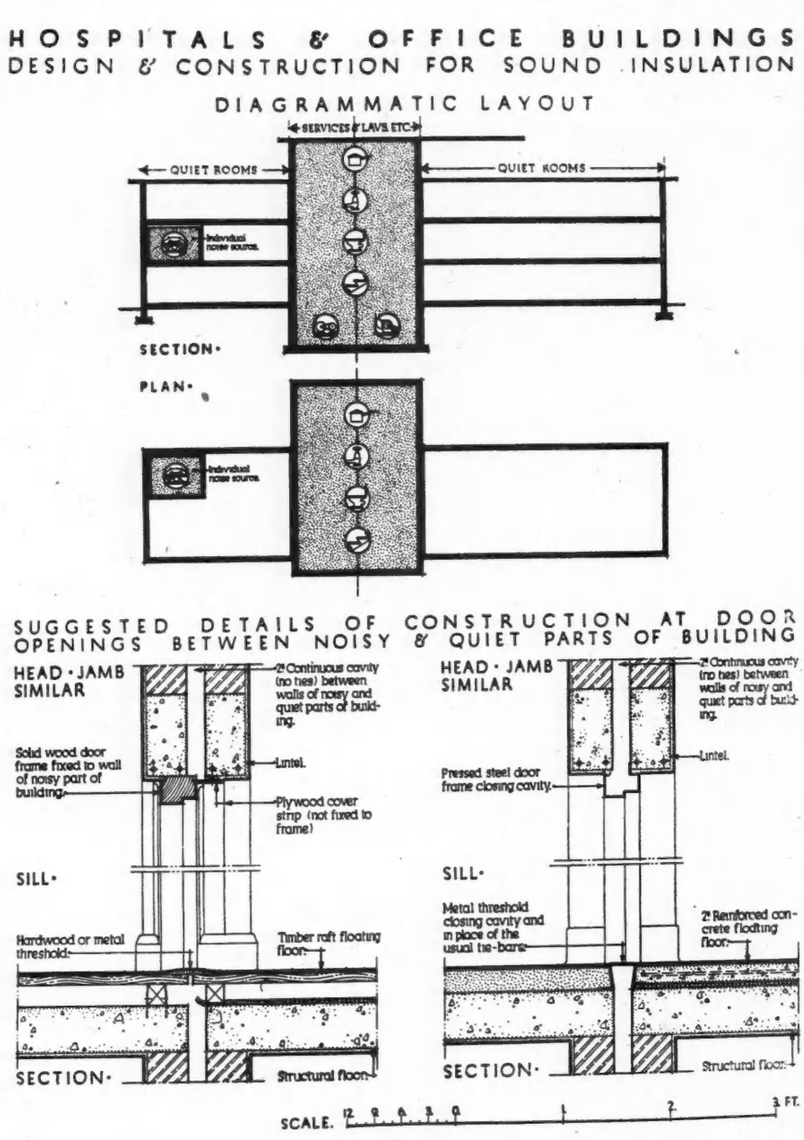

HOSPITALS & OFFICE BUILDINGS
DESIGN & CONSTRUCTION FOR SOUND INSULATION
DIAGRAMMATIC LAYOUT
SERVICES & LAVS ETC.
QUIET ROOMS
QUIET ROOMS
Individual noise source.
SECTION.
PLAN.
Individual noise source.
SUGGESTED DETAILS OF CONSTRUCTION AT DOOR OPENINGS BETWEEN NOISY & QUIET PARTS OF BUILDING
HEAD · JAMB SIMILAR
2" Continuous cavity (no ties) between walls of noisy and quiet parts of building.
Solid wood door frame fixed to wall of noisy part of building.
Lintel.
Plywood cover strip (not fixed to frame)
SILL.
Hardwood or metal threshold.
Timber raft floating floor.
Structural floor.
SECTION.
HEAD · JAMB SIMILAR
2" Continuous cavity (no ties) between walls of noisy and quiet parts of building.
Lintel.
Pressed steel door frame closing cavity.
SILL.
Metal threshold closing cavity and in place of the usual tie-bars.
2" Reinforced concrete floating floor.
Structural floor.
SECTION.
SCALE. 12 9 6 3 0 1 2 3 FT.

FIG. 4.

above a layer of resilient asbestos cloth just below its junction with the roof.

These are the essential details of the discontinuous construction in this case, but lesser points such as (*a*) the division of foundations, (*b*) the treatment of windows in cavity walls, and (*c*) points of planning and general design must be taken into account if success is to be achieved.

It may be of some interest to mention that, at the present time, one builder is constructing several semi-detached houses along the lines recommended in an endeavour to provide adequate sound insulation at less than the cost of a comparable detached house. The Station proposes to examine the houses when they are finished.

2. Hospitals.

Hospitals will, perhaps more than most buildings, present markedly individual problems in each instance. For this reason the recommendations made are, of necessity, rather in the nature of generalisations.

Roughly speaking, it may be said that hospitals require to be carefully "zoned" in planning, as experienced hospital architects are well aware. The wards are commonly a region where quiet is demanded, and where the noise sources are not usually intense, while the kitchens and various offices are usually sources of considerable mechanical noise, although a high resistance to penetration of sound from outside is not necessary.

In the "quiet zones" probably the requirements for air-borne sound insulation are within the limits for rigid, continuous structures and can thus be easily dealt with (see Part I of this note), and impact sounds, which might be a nuisance, can be adequately dealt with by the use of a floating floor.

In the "service zones" also the requirements of insulation are probably within the limits for rigid, continuous structures.

Between the two regions, however, it is quite probable that insulation of a higher order will be required, and for this purpose a discontinuity should be introduced into the structure.

Figure 4 illustrates these points both in general in the two upper sketches and in detail beneath, where methods are shown for closing the cavity which would have to be provided to interrupt the structure. These details are of considerable importance in practice, since, comparatively speaking, a very small amount of rigid contact can entirely destroy the insulation provided by a large area of cavity construction. Closing the gap around a single doorway with rigid materials would, for instance, damage the insulation over perhaps the whole of the area of the cavity. The cavity should apparently be treated throughout as an expansion joint in the building. In some cases, of course, this may be a useful function quite apart from sound insulation.

In hospitals occasions may arise where a single room or group of rooms, where there are sources of noise, may have to be placed in the midst of a quiet zone. These could be treated like the box constructions described earlier in connection with the experimental work. Details for the simple construction of such rooms are given in the section on the treatment of flats which, again owing to the limitations of space, cannot be dealt with here. Such constructions offer, of course, a very high degree of insulation.

Conclusions.

From this second part of the note three important deductions can be made which might well be added to the summary given in Part I.

Firstly, it will be obvious that in practice the solution of the problem of sound insulation is primarily in the hands of the architect and is not merely a question of applying "sound insulating materials." Such special materials as the architect will need from time to time will be required essentially for their property of resilience, and for the rest his principal aids are the ordinary structural materials, and within reason the simpler and the more robust these are, the better they will serve his purpose.

Secondly, the demonstrated principles of sound insulation and the suggestions for practice which have been made, are both so comprehensive that it seems highly probable that efficiency and economy will be best served by considering them in the earliest stages of the design of a building. In some cases, perhaps, planning alone may then be sufficient, or a few changes in constructional detail, but in others it seems likely that best use of the ideas can only be made if they are allowed to operate as a function of the design.

Thirdly, the technique of discontinuous construction, properly used, can provide insulation of a very high order, adequate, in fact, for almost any conceivable noise problem, but involving, on the whole, very little intricate or heavy construction.

IN PARLIAMENT

Commercial Buildings.

SIR H. WILLIAMS asked the Home Secretary if he could make a statement as to the progress made under the Civil Defence Act in connection with blocks of flats, commercial buildings and factories respectively.

MR. LENNOX-BOYD, who replied, said that substantial progress had been made with this work : but the period of three months within which the Civil Defence Act required reports to be made by the occupiers of factories and the owners of commercial buildings on the shelter provision which they were providing or proposed to provide did not elapse until November 14, and until those reports had been received and digested detailed information would not be available. Reports were not required to be made under the Civil Defence Act in the case of privately owned blocks of flats.

WHITE LEAD AND RED LEAD PAINTS.

In the course of a communication on this subject, Mr. W. Roger S. Hodgson, secretary of the Lead Industries Development Council, writes as follows : A number of inquiries have been received from the trade as to the availability of supplies of white lead and red lead paints for normal purposes. Supplies of metallic lead from which these pigments are made come almost entirely from Empire sources, and are now controlled by the Government, but, subject to the approval of the control authorities, manufacturers of lead pigments and other lead products hope to obtain sufficient supplies of their raw material to fulfil their customers' requirements, and up to the present no difficulty in this respect has been experienced.

The established manufacturers are in a position to produce as usual, and are anxious to make supplies available to their customers with as little disturbance as possible. At the time of writing there is no difficulty for decorators, builders and contractors in obtaining their reasonable requirements for normal maintenance painting, and it is confidently hoped that this will continue to be the case.

The Lead Industries Development Council will be pleased to give any information or advice to users of lead paint who may be in any difficulty over the question of supplies.

EMERGENCY INQUIRY BUREAU

Questions from readers arising out of War-time difficulties and recent Emergency legislation will be answered by a special staff of contributors. Questions, which should be addressed to the Editor, should be accompanied by a stamped and addressed envelope.

Price of Timber.

SIR,—*I should be glad if you could inform me what is our position as to the supply of timber on jobs for which the order was booked, and the price fixed with the suppliers, some considerable time before the war, but only part of which has been delivered up to date. The timber suppliers state that all timber is now controlled and the prices also controlled, so that they can supply only at Government prices. In these circumstances, seeing that it is through the action of the Government that the prices have been increased, the old contracts cannot apply. Should not the increase, due to Government action, be added to the price of the contract?* W. J. D.

It would appear that here a firm contract was entered into prior to the war for the timber referred to not only in respect to that part already delivered, but also in respect to that part still to be delivered. The question arises whether, because of the contract of timber and its price which now exists, it can be implied that a condition, though not expressed in the contract, nevertheless now obtains, and that the effect of the contract is to put an end to the contract—at any rate as far as the undelivered part of the timber is concerned. We think that there is no action of the Government so far entitling a party to a pre-war contract to say now that it has been terminated, on the contrary, it can be enforced. The increase cannot be added to the price of a pre-war contract, though, of course, it should be taken into account in any contracts made since the control was ordered.

Raising of Mortgages.

SIR,—*Do any special conditions now attach to the raising of mortgages for private housing? I am interested in the disposal of the houses remaining on a private housing estate.* SURREY.

Some of the leading building societies are not at present making fresh advances upon house property, nor, we understand, will they do so until outstanding questions such as their investors' security, the position under the Housing (Emergency Powers) Act, 1939, interest rates, etc., have been fully investigated. This is not likely to be sooner than some months.

It is still open for intending house purchasers to come to an arrangement with a bank or a private mortgagor, if they can, though this may be difficult in the present absence of a scheme for war risk insurance of house property. The Housing (Emergency Powers) Act referred to above certainly makes provision for the repair of war-damaged or destroyed houses, where the local authority considers that lack of housing accommodation in the area makes this necessary; but, as will be perceived, this is permissive, nor is the question of ultimate liability for the cost of repair (which, under the Act, is left in abeyance until the end of the emergency) sufficiently definitive to replace the absence of a scheme for insurance of property against war risks.

Pre-War Building Contracts.

SIR,—*Further to your reply to "A. A. W." in "The Builder" for September 29, are merchants and suppliers right in making the surcharge for compulsory war insurance on invoices for goods for which they have quoted prior to the war, and can the building contractor pass on these charges when he has given a firm estimate?*

O. B. & D. LTD.

If the firm estimate has been accepted, the contract resulting therefrom can be enforced in the terms of the contract. And if there is no term in the contract making provision for the payment by the purchaser of any compulsory war insurance on invoices for goods for which merchants and suppliers contracted prior to the war, it follows that the building contractor cannot pass on those charges, or in any way recover them. He should endeavour to come to an equitable understanding with the party to the contract in the circumstances, and, of course, safeguard himself in future contracts. If it were otherwise, it might well be that the increase on income tax were recoverable, which is absurd.

Anti-Flooding Interceptor Ball Trap.

Several answers to this question, received from readers, have been forwarded to our correspondent "H. M. B.," whose inquiry was published in our last issue. Extracts from one of these are given on page 599.

Addition to Contract Price.

SIR,—*Is a builder entitled to add 10 per cent. to contract price, although in finishing the job, materials, etc., have cost him 20 per cent. plus 5 per cent. war risk? For example, I have just completed an air-raid shelter. The contract was given on July 20, 1939, for £185 17s. 6d., and a letter of acceptance was received on August 29. The job was started on September 1, and after a lot of trouble materials were obtained at an advanced price of 20 per cent. plus 5 per cent. war risk. The job was finished and an account sent in for £185 17s. 6d. contract price plus 10 per cent. Is that fair and equitable?* G. B. (Holloway).

The addition of 10 per cent. on the contract price, in the circumstances described, is exceedingly fair and reasonable, and no doubt would be agreed to by the employer, the other party to the contract. But the employer is under no contractual obligation to agree to the 10 per cent. increase since the firm contract for £185 17s. 6d. was made in July last, prior to the war, and the work was started on September 1, two days before war was declared. Even if it had been started subsequent to the declaration of war, the contractor must complete at the agreed price and at whatever cost. He has, in fact, completed the work. The war has not made it impossible of performance, though it has cost him more. That is a necessary suffering which the war entails, and will have to be met unless the work which is the subject-matter of the contract is stopped by the Government.

LAW REPORT

WALL DISPUTE AT OXFORD.

CHANCERY DIVISION.
Before MR. JUSTICE BENNETT.

Urban Housing Co., Ltd. v. City of Oxford and Another.

This was an action brought by the Urban Housing Co., Ltd., for an injunction to restrain the Mayor and Corporation of the City of Oxford from interfering with, or preventing plaintiffs from erecting, certain walls erected by them in December, 1934, on land belonging to them which adjoined Wentworth- and Carlton-roads, in the City of Oxford, which walls the plaintiffs said had been unlawfully demolished by the defendants in June, 1938.

Mr. C. R. Fox, the Chief Constable of Oxford, was joined as a second defendant to the action, who pleaded that he had no interest in the dispute except to carry out his duties as Chief Constable, and he was eventually dismissed from the suit, his lordship making no order as to his costs.

The material facts of the dispute were these: The plaintiff company in 1934 were developing a residential estate on a portion of the land in question, and the defendant Council were doing likewise on land on the east side of that of the plaintiffs. In that year the plaintiffs erected a wall across each of two parallel roads which passed through the two estates and gave access to the Banbury road.

These walls prevented the occupants of the Council's estate from passing along the roads through the plaintiffs' estate so as to reach the Banbury road, and the defence raised was that the walls had been wrongfully erected so as to block the roads, that the roads were public highways, and that the Council were entitled to remove them as constituting breaches of certain by-laws in force within the City of Oxford, and of the plaintiffs' obligations under a deed of conveyance dated September 9, 1933.

Mr. Erskine Simes and Mr. C. E. Scholefield appeared for the plaintiff company; and Sir Stafford Cripps, K.C., and Mr. Wilfrid Hunt for the defendants.

In giving judgment, his lordship said that one of the questions which had arisen in the course of the case was whether a wall made of brick could properly be said to be a fence within the meaning of a condition restricting the erection of a fence. He could see no reason why he should not regard a wall as a fence, as did the Oxford dictionary.

The conclusion to which he had come, and that he regarded as the real question in the case, was that the defendants had failed to establish that the restrictive covenants into which the plaintiffs had entered in the conveyance of 1933 had been and would be infringed by the erection of the walls which the Council had demolished.

During the course of the arguments he had made some observations on the action of the defendant Council in taking the law into their own hands as they had done on June 7, 1938. He had said before, and he now repeated, that he considered it was deplorable, after that wall had been up for three and a half years, that the defendant Council should have thought it right violently to pull it down, instead of going to the King's Courts to have their wrongs redressed if they had any [a steam-roller had been used for the demolishing].

His lordship, concluding, said the action in his judgment succeeded, and the defendant Council must pay the plaintiffs' costs.

The order of the Court was that there would be a declaration against the first defendants that the plaintiffs were entitled to erect and maintain, on the sites on which they formerly stood, the two walls demolished by the defendant Council.

His lordship added that he did not imagine that it was necessary to grant the injunction which had been applied for by the plaintiffs. The plaintiffs were also entitled to receive £180 damages.

Judgment was entered accordingly.

A.A.S.T.A. EVACUATION REPORT

A REPORT on the accommodation of evacuees in the reception areas has been prepared by a special committee of the Association of Architects, Surveyors and Technical Assistants. Copies are obtainable (price 4d., post free) from the Secretary, 57, New End, N.W.3.

Holding the opinion that evacuation presents planning problems with which architects are especially qualified to deal, and which are of vital interest to the profession, the Report makes proposals for the better use of existing buildings, points out the need for new construction, and makes suggestions as to its planning. In order to obtain a true picture of conditions, a number of districts in the London reception area have been visited and information collected from officials, helpers and residents.

The Committee concludes that accommodation must be found to fulfil the following requirements: (*a*) Social life for the mothers; (*b*) Nursery schools for young children and hostels for some mothers; and (*c*) Full education and communal meals for school-children (in some cases with living accommodation). "Obviously," it is stated, "existing accommodation, where it is available, must be used to the full to satisfy these needs. . . . Even the fullest use of existing buildings cannot, of course, solve the problem, and new buildings are an absolute necessity. . . . The new buildings required are as follows:—

(*a*) For the school-children: Educational buildings with facilities for the serving of a communal midday meal in those villages and towns where the billeting conditions are favourable; and residential camp schools in the countryside, with facilities in one building group for education, feeding and general welfare, for the children now in the larger towns or in unsuitable country billets;

(*b*) For the mothers and small children: Social centres with facilities for communal meals, rest and recreation for the mothers who remain in billets; and residential nursery schools for the young children, which can be combined with living accommodation for those mothers who remain with their babies.

"All those buildings will, if properly designed, be of the utmost value after the war is over. The residential camp schools could be used regularly by school-children from the towns for two or three weeks each year, as part of their normal education. There are already about 20 progressive urban education authorities who run camp schools in this way, and this is an opportunity for extending these facilities. The social centres and educational buildings would be of great value to the country people as those meeting halls and centres of social life which are so sadly lacking in rural areas. The nursery schools and hostels, administered by the urban local authorities and used in conjunction with the clinics and welfare centres, would be ideal as holiday homes.

The Building Programme.

"Without making a more detailed study, it is impossible to estimate the capital cost of a complete building programme as suggested in this Report. It is of interest, however, to compare with the cost of new buildings the money the Government is spending on billeting. Assuming the war will last for three years, the Exchequer will spend more than £60 in this time on the weekly payments for lodging only (excluding food) of a mother with her child. For little more than this sum they could be provided with a place in a new building designed for them.

"Considering this on a national scale, the total cost for all mothers with babies or children under five who normally live in evacuation areas, and who under the Government scheme should be evacuated, would be around £35,000,000. This sum, which is being spent on a single item, should certainly not be less than half of the total capital cost of a complete building programme for the reception areas, including camp schools for the school-children at present billeted in towns, educational buildings for the school-children who could remain in billets, and nursery schools and hostels for the mothers and children who could not be found accommodation in existing buildings.

"Parallel with this building programme would be the no less essential extension of the health services, at present sadly lacking in the rural areas. This, too, would necessitate new construction, but it has not been considered in detail here.

"At the present time the building industry is gravely dislocated. Most normal building activity has ceased. Many building trade workers are engaged on emergency work, but some trades are almost wholly unemployed. Architects have been particularly badly affected, and there is no immediate prospect of their position being alleviated. These facts must be borne in mind when organising the programme.

"We realise that large-scale building in war time entails many difficulties. Some materials will not be readily obtainable and alternative methods will have to be considered. The key lies in the fullest use of prefabricated methods of construction, which if carried out on a large scale would prove cheaper and quicker than ordinary methods. It entails the designing of buildings with standard plan units which can be adapted to different sites and conditions, the whole of the buildings being constructed of standard sections made in central plants. Work on the site is reduced to a minimum, and consists mainly of erecting the sections. The Government's programme for camp schools is on much too small a scale to show the advantages which prefabrication is meant to attain—speed of erection and saving in cost."

Members of the Committee have prepared a scheme for a group of buildings comprising a residential nursery school with dormitories and play-rooms for a total of 40 children, and accommodation in chalets with a communal dining-hall and recreation room for 40 mothers with their babies or young children. The recreation room would serve as a social centre for people in the adjoining village. It is estimated that these buildings, if a reasonable number of groups were built, would cost about £7,500, or £58 per person, including children, but excluding babies.

WAR RISKS

NO PROTECTION FOR FIXED PROPERTY.

LORD WEIR'S Committee, appointed by the Government to consider the problem of compensation to owners of private property damaged by enemy action, has reported its inability to find or devise any scheme of mutual protection against this war risk which would be either practicable or justifiable. Legislation is to be introduced by the Government to carry out a recommendation of the Committee that advertising and the circulation of prospectuses to the public by private organisations purporting to give protection against such war risks should be prohibited.

The Committee, in the Report issued on Tuesday as a White Paper (Cmd. 6116, 4d.), summarises its conclusions as follows:—

(1) We were asked "to examine the practicability of evolving any scheme for mutual protection against the risk of war damage to fixed property in private ownership." We have done so and failed either to find or to devise any scheme of the mutual protection character which would be practicable or justifiable.

(2) At the end of the war in the light of the general national situation, the Government and the people will have to make their plans to restore as promptly and effectively as possible the damaged capital assets of the country and to-day is not the time to fix with any rigidity precise means and methods by which this great task should be discharged.

(3) The Government, having accepted responsibility for compensation and having given their promise to meet this so far as possible by putting the burden on the community, should not be tied to-day by any definite method of imposing that burden.

(4) The Government should always have before them as the desirable objective the payment of compensation in full.

(5) While agreeing with the Government's proposal to pay compensation in full up to a certain limit we see no justification for the proposal to grade above that limit and we recommend the Government to reconsider that proposal.

(6) Certain matters should be the object of careful attention by the Government:—

(*a*) Special cases of hardship.

(*b*) The relationship of mortgagors, mortgagees, and other interested parties after the war.

(7) Measures should be taken to curtail privately organised contributory schemes.

EMERGENCY ADDRESSES

Their usual offices having been requisitioned by H.M. Office of Works, MESSRS. BRIGGS AND THORNELY have removed to Dominion Buildings, 28, Brunswick-street, Liverpool, 2.

MESSRS. R. T. JAMES AND PARTNERS, consulting civil engineers, have transferred their offices to "Fernside," Witley Station, Godalming. Telephone number: Wormley 252.

The temporary address of MR. HAROLD G. DYKE is "Oaklands," Chesham-road, Amersham, Bucks (telephone: Amersham 41); and CLOTHED CONCRETE CONSTRUCTIONS, LTD., are operating from the same address.

The A.A.S.T.A. and Future Plans.

THE temporary address of the A.A.S.T.A. and of its official journal "Keystone" is 57, New End, Hampstead, N.W.3 (telephone: Hampstead 4906). The monthly publication and distribution of "Keystone" will be continued as usual. The employment register of the Association will also be actively continued.

BOOK REVIEWS

Squires' Homes and Other Old Buildings of Northamptonshire. By J. Alfred Gotch. (Batsford.) 15s. net. Pp. xiv + 52, with 130 photographic illustrations.

Mr. Gotch, one of the two Grand Old Men of architectural literature, has been producing books for 56 years, and still persists in that delightful hobby at the age of 87. He was born in Northamptonshire, he has lived and worked there all his life, and now in his old age he still finds pleasure in revisiting the places he knows so well. Two years ago he published a volume uniform with this, "The Old Halls and Manor Houses of Northamptonshire," and in the present work he devotes most of his attention to the smaller domestic buildings of that architecturally rich county.

The style of these buildings is well known to students. They belong to the "Cotswold" style of building which follows the belt of fine limestone across England from Dorset to the Wash; and they form one of the most attractive variants of our national architecture, with their gables, mullioned windows, bold chimneys, and steep roofs covered with small stone "slates." Though this style reached its perfection in the sixteenth and seventeenth centuries, most of the subjects illustrated here are somewhat later in date; and many of them are so much imbued with the copy-book pedantry of the Renaissance that they possess no other Cotswold characteristics than the use of stone. Unique among all these examples of masonry is the ornamental plasterwork on the façade of a house in Higham Ferrers.

Readers of Mr. Gotch's numerous books will find in this one what they naturally expect: urbane and scholarly writing pleasantly interspersed with gossip, literary allusions, and scraps of family history. The illustrations include a few reproductions from old prints and modern sketches, but most are from photographs, not all of which are up to the standard that one has come to look for from their publisher. Nevertheless, they form an interesting and attractive series, including—besides domestic buildings—several examples of almshouses, market-crosses, and other picturesque features of the typical Northamptonshire village.

Modern Building Technique: Domestic and Similar Structures. By Edwin Gunn, A.R.I.B.A. (London: "Architect and Building News.") Price 6s.

Much of Mr. Edwin Gunn's vast store of practical knowledge of building is contained in this volume. The constructional processes are examined one by one in order, each chapter being illuminated by that flame of experience which shines so clearly in Mr. Gunn's writings. This first-rate text book for the architectural student is prefaced by an introduction by Dr. R. E. Stradling, D.Sc., who pays just tribute to the author's skill in "putting across" the results of recent scientific additions to building knowledge.

Model Building Byelaws Illustrated. By G. Eric Mitchell, A.R.I.B.A., M.Inst.M. & Cy.E. (London: B. T. Batsford, Ltd.) Price 10s 6d.

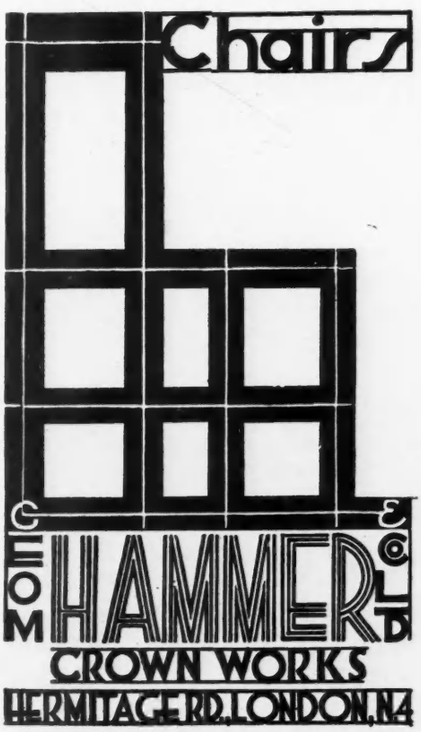
One of the few advantages of a time of crisis is that, so soon as the initial shock is over, the professional man has respite to take stock of the situation and may even catch up a little on the legislation which in normal times threatens to overwhelm him. The "Model Building Byelaws" are a case in point; these byelaws, made under the Public Health Act, 1936, came into force on July 31 last—at a time when most local authority officials were busied with A.R.P. Representing, as they do, a most important advance in municipal affairs, these byelaws will be used as the model to which building byelaws are to be amended. Those whose duty it is to frame new local byelaws (as well as those who must submit, and those who must examine plans under that body) have now an opportunity to study the byelaws, if they have not already done so; in this Mr. Eric Mitchell's book should prove of the greatest assistance. The text of the byelaws is supplemented where necessary by drawings, and certain of the byelaws are accompanied by comment and explanations. A most useful section is that in which a model specification of a modern dwelling house is completely illustrated throughout by trades. We commend this well-arranged and printed book to professional men as a reference and to students entering professional examinations as a guide.

The Encyclopedia of Plumbing, Heating and Sanitary Engineering: A Handbook of Modern Practice for the Craftsman, Tradesman and Engineer. In three volumes. Edited by S. G. Blaxland Stubbs. (London: The Waverley Book Company, Ltd.) Price £3 6s. 6d. net (or in 14 monthly instalments of 5s.).

This Encyclopedia, produced under the general editorship of Mr. S. G. Blaxland Stubbs (who produced some two years ago an excellent Encyclopedia of Building), makes its appearance at a time when it is capable of proving of maximum use and value to students of the subjects dealt with who have been compelled—through the closing down or partial restriction of the activities of some technical schools—to suspend or limit their studies. In these three volumes is contained the sum of that information and knowledge which the plumber and heating and sanitary engineer require to know. This is not to be taken to mean (and indeed the editor does not claim) that this or any written work can supersede practical experience. It may justly be claimed for this book, however, that it guides and supplements at every step the student's progress towards past-mastership and is precisely that form of reference which the qualified plumber and engineer will find most useful. In both these directions, the clear type, liberal illustrations and alphabetical arrangement are of the greatest assistance. Nor must the system of cross reference be forgotten.

The subject-matter is considered under 20 sections; some of these rank as complete, up-to-date text-books of their own. While full and careful attention is paid to the scientific bases of the plumbing and sanitary engineering crafts, the work is essentially a handbook of modern practice. The editor has been assisted in achieving this object by a galaxy of helpers whose reputations in their respective fields are high. Thus the Institute of Plumbers, the Worshipful Company of Plumbers, the Royal Sanitary Institute, the Institution of Sanitary Engineers and the Institution of Heating and Ventilating Engineers have lent their assistance; while individual contributors include Mr. Percy Manser, M.R.San.I., Mr. L. J. Overton, M.I.H.V.E., and Mr. E. T. Swinson, F.R.San.I. (who acted as associate editors), Mr. W. T. Creswell, K.C. (legal editor), and Messrs. H. Barrett, J. W. Cowan, W. E. Fretwell, F. Herod, R. N. Le Fevre, F. C. Temple—to mention a few only.

We heartily commend this book to all students—past, present and intending—of the plumbing and sanitary engineering crafts, and congratulate the editor not only on a remarkable production but upon arranging a scheme of purchase which puts it within the reach of every student.



BOOKS RECEIVED

Private Companies: Their Management and Statutory Obligations. 5th Edition. By Stanley Borrie. (London: Jordan & Sons, Ltd.). Price 5s. net.

Solid Fibrous Plastering. By W. Verrall. (London: The Technical Press, Ltd.). Price 9s. net.

The Standard Form of Building Contract (1939). By Derek Walker-Smith, M.A., and Howard A. Close, M.A. (London: The Federated Employers' Press, Ltd.).

A Key to Modern Architecture. By F. R. S. Yorke, A.R.I.B.A., and Colin Penn, A.R.I.B.A. (London: Blackie & Son, Ltd.) Price 5s. net.

Builders' Materials. By Bernard H. Knight and Rena G. Knight. (London: Edward Arnold & Co.). Price 15s. net.

Estimating, 9th Ed. By B. Price Davies (Cardiff: The Building Estimator Publications). Price £1 5s.

More Advanced Quantity Surveying. By Arthur J. Willis, F.S.I. (London: Crosby Lockwood & Son, Ltd.) Price 21s. net.

Refractories. By Alfred B. Searle. (London: Crosby Lockwood & Son, Ltd.) Price 3s. 6d. net.

DIRECTORY OF THE BUILDING TRADES

The 22nd edition of "Kelly's Directory of the Building Trades" has just been published, at the price of 50s. net. This Directory has long been regarded as an indispensable guide to firms engaged in the Building and Allied Trades in England, Scotland, and Wales. Names and addresses are given of approximately 25,000 builders and 3,000 builders' merchants. Extensive lists are also given of those engaged in the various allied professions, such as architects, surveyors, land and estate agents, timber merchants, plasterers, sanitary engineers, etc. The names of manufacturers of building material are classified under a most comprehensive range of trade headings. In this connection attention is drawn to the lists of A.R.P. contractors and of the manufacture of A.R.P. appliances and equipment.

In order to facilitate reference the book is divided into three main sections, comprising: (1) a Places Section, which gives classified lists of the names and addresses in each town or village, arranged in counties, together with such details as population, early closing and market days for each place; (2) an alphabetical Trades classification for the London postal district, with the names and addresses arranged alphabetically under appropriate trade headings; (3) a similar trades classification for the rest of England, Scotland and Wales.

There is also an extensive section giving in alphabetical order a list of branded articles and trade names of specialities used in the building trades, together with the names and addresses of the manufacturers.

[Any of the above books may be obtained through the Publisher, *The Builder*, 4, Catherine Street, W.C.2.—Ed.]

A.R.P. SCHEMES

AUDENSHAW. — The U.D.C. proposes public communal shelters.

BACUP.—Messrs. H. Trickett and Sons, of Rossendale, are erecting surface shelters for air raid wardens for the T.C.

BATLEY.—The T.C. approved plans for air raid shelter and ambulance room in Branch-road, for Messrs. J. T. and J. Taylor, Ltd., Station-road.

BELFAST.—The following contractors have agreed to the Corporation's proposal to erect concrete air raid shelters at £124 12s. 6d. each: Messrs. J. Moreland, White and Co., Ltd., Bell and Charters, Ltd., J. Ashridge, Fraser and Co., Ltd., Greenaway and Moore, Ltd.

BIRMINGHAM.—The T.C. is recommended to approve the following: Double stop gates on the Birmingham and Warwick canal at Vineries Bridge, Woodcock-lane and Castle-lane, Olton, for the prevention of flooding in the city, at £2,965, and strengthening of 900 private basements to provide air raid shelters, at £31,500.

BLACKPOOL.—The C.B. is to erect by direct labour a cleansing station.

BOLTON.—The E.C. has received £34,376 loan sanction for trenches and shelters at schools.

BURNLEY.—The T.C. are to provide shelters for 12,000 school children at the schools, at £47,575.

CAMBUSLANG. — Mr. J. G. Dunn, 31, Greenlees-road, is the architect for a decontamination station at Messrs. Colville's, Ltd., Clydesdale Ironworks.

CLITHEROE. — The T.C. propose communal surface shelters, each to accommodate 50 persons, on various sites, and covered shelters for 1,200.

COLNE.—The T.C. is to seek a £10,000 loan sanction for air raid shelters at schools.

CONSETT.—The U.D.C. is to construct 2,000 surface air raid shelters.

DARLINGTON.—The T.C. has approved plans for Messrs. J. Clayton and Deas for Messrs. Luck and Son, shelter, High-row, and for Messrs. E. D. Walker Wilson, Ltd., shelter, Victoria-road; Messrs. W. S. Hutton, Ltd., for Messrs. J. Tinsley, Ltd., shelter, Neasham-road, and "The Northern Echo," North of England Newspaper Co., Ltd., shelter, Priestgate.

DARWEN.—The T.C. is to erect 80 public air raid shelters for 4,000 persons, and concrete and brick shelters for 16 schools. The plans are by the Borough Engineer, Mr. E. Marsden.

DEPTFORD.—The B.C. has accepted the tender of Messrs. Greenaway and Son for A.R.P. depots at Malpas-road and Giffin-street, and a new report and control centre, at £4,650. The Council are to erect an A.R.P. store building at Creekside Depot, and the following shelters are about to be commenced:—Basements, 302-312, New Cross-road, for 250 persons; basements, 318-320, New Cross-road, for 100; Vesta-road bridge site for 50; basement, British Games, Ltd., 1937, Tanner's Hill, for 100; basement, Fifty Shilling Tailors, Deptford High-street, for 150; basement, 2, Egmont-street, for 50; basement, Conservative Club, 390, New Cross-road, for 50; and St. John's hostel, Watson-street, for 150.

DONCASTER.—The T.C. is to seek £28,000 loan sanction for shelters at elementary schools and £3,400 for shelters at grammar school, High school for girls and technical school.

DURHAM.—The City Council has applied for £3,000 for construction of shelters at the schools.

EDINBURGH.—Shelters to accommodate 1,100 persons are to be erected at the George Watson College and the David Stewart College.

FLEETWOOD.—The T.C. propose shelters for 2,400 people.

GLASGOW. — Plans approved for A.R.P. shelters for Messrs. Vestis, Ltd. Mr. Thomas Grattan, architect, 90, Douglas-street, Blythswood. Builders, Messrs. J. Green and Co., Ltd., Glasgow; same for Messrs. Ritchies Box Factory. Mr. Alexander Wright, architect, 7, Newton-terrace, Sauchiehall-street. Builders: Messrs. John Green and Co., Ltd., Glasgow: same for the large block of offices at Bothwell Circus-chambers. Messrs. Andrew Balfour and W. Stewart, architects, 110, Blythswood-street. Builders: Messrs. R. M. Gibson, Langside; same at Assurance offices, West Campbell and West George-street, Blythswood. Messrs. Campbell and Hislop, architects, United Kingdom Provident Institution Buildings, St. Vincent-street. Builders: Messrs. Duncan Stewart (Bonnybridge), Ltd., Bonnybridge.

GLASGOW.—The Corporation Emergency Committee has decided to proceed with 400 bomb-proof shelters, each accommodating 50 persons, in the tenement areas in the city.

GLASGOW.—The following schemes for private shelters are to be carried out Summerlee Iron-works, West George-street, Messrs. Burnet and Boston, 180, Hope-street, Blythswood, architects; D. A. Clark, Ltd., Cotton-street, Messrs. Miller and Black, 132, West Regent-street, Blythswood, architects; Glasgow Royal Arcade, Mr. J. Boyd, 147, Bath-street, Blythswood, architect; Mathers-vaults, Queen-street, Mr. L. H. Ross, 223, West George-street, architect; factory, Glasgow East, Mr. A. Wright, 7, Newton-terrace, Sauchiehall-street, architect; Cadogan-street warehouse, Messrs. Weddell and Ingles, 216, Bath-street, architects; Sun Insurance-buildings, Mr. L. H. Ross, architect; Messrs. Stephen and Pettigrew's warehouse in Sauchiehall-street, Wellington-street and Bath-street, Messrs. John Keppie and Henderson, 181, West Regent-street, architects, Messrs. MacCallin, 389, Argyll-street, contractors; Messrs. R. G. Larwie, Ltd.'s, premises, Mr. MacDonald, 28, Renfold-street, architect, Messrs. John Green and Co., Ltd., contractors; Messrs. W. Milne and Co., Ltd.'s, ice factory and offices, Messrs. McLaren, 318, Paisley-road, contractors; two at Queen's Park, five at Bridgeton and two at Maryhill, Messrs. Miller and Black, 132, West Regent-street, Blythswood, architects. Mr. R. McGill, contractor; Messrs. Bayne and Ducket's premises, Mr. J. T. Thomson King, Central Station-building, Union-street, architect, Messrs. J. Train and Co., Ltd., contractors; Bank-buildings, St. Enoch's-square, Messrs. Watson, Salmond and Gray, Central Station-buildings, Union-street, architects, Messrs. Morrison Dunbar, Ltd., contractors.

GOVAN.—Plans prepared for shelters for Messrs. Gray, Dunn and Co., Ltd., Stanley-street, Govan. Messrs. Watson, Salmond and Gray, architects, Central Station-buildings, Union-street, Mr. T. Wallace, contractor.

GREENOCK.—The Corporation Emergency Committee has decided to proceed with 24 additional surface air raid shelters, for 50 persons each.

HEBBURN-ON-TYNE.—The Surveyor to the U.D.C. has prepared a scheme for further communal air raid shelters. The Council are to build two mortuaries and carry out alterations to Ellison Hall Infirmary to provide first aid station. Contracts have been placed for over 600 concrete shelters for backyards as follows: Council's Works Dept.: D. Glen, Bk Queen's-road, Jarrow; J. M. Black, Ltd., Grange-road, Jarrow, and S. and H. Oake, Charles-street, Hebburn.

HENDON.—The T.C. has passed plans for air raid shelter, in Colindeep-lane, N.W.9, for Messrs. Davies Tyre Co., Ltd. Messrs. S. C. Tee and Gale are the architects; and 8 air raid shelters, first aid and cleansing station, Bittacy Hill, Mill Hill, for the United Kingdom Optical Co., Ltd. Messrs. H. Wright and Tidmarsh, architects.

HESTON.—A cleansing station is to be erected in New Heston-road for the T.C. Mr. J. G. Carey, A.M.Inst.C.E., Borough Engineer and Surveyor, has prepared the plans, and a contract has been placed with Messrs. B.C.M. Estates and Contractors, Ltd., 235, The Broadway, Southall.

JARROW.—The T.C. has received sanction for concrete back-yard and street shelters to cost £28,000.

KETTERING.—The T.C. proposes 12 air raid shelters and cleansing stations at Northfield depot and London-road brickworks, at £2,157; shelters at Council schools, at £7,120; additional trench shelters for 1,600 persons on Northfield and Windmill-avenues, at £4,214.

LANCASTER.—The E.C. proposes shelters to 17 schools at £20,000. The T.C. are to provide trenches for 1,700 persons and cellar accommodation for 3,000 persons.

LEIGH.—The Corporation Building Department are to erect at £6,406 shelters to council schools to accommodate 3,077 children and 127 teachers.

LEWISHAM.—The B.C. are proposing additional depot accommodation for A.R.P. work at £5,050.

MACCLESFIELD.—Mr. M. B. Tetlow, Borough Architect, has prepared plans for shelters for the Council schools, at £8,000 to £9,000.

MANCHESTER.—Tenders for bomb-proof reinforced concrete shelters at (a) Barton and (b) Stuart-street generating stations, have been placed by the T.C. with: (a) Messrs. J. Dickinson and Co., Ltd., Fairclough-street, Bolton, and (b) Messrs. J. H. Cassel and Co., 370, Bury New-road, Broughton, Manchester.

NEWCASTLE - ON - TYNE. — Messrs. Hetherington and Wilson, County Chambers, Westgate-road, have prepared plans for air raid shelters in Waterloo-street, for Messrs. W. H. Smith and Son, Ltd., in Hunters-road for Messrs. Robson and Son, and in Tower-street and Blenheim-street for Messrs. E. Baker and Son. Shelters are also proposed at Central Exchange-buildings, Market-street and Grainger-street. The architects are Messrs. J. Oswald and Sons, Bradburn House, Northumberland-street; Akenside House, The Side (J. M. Roonthwaite, Ellison-place); Westgate-road, for Messrs. Stephen Easten, Ltd., builders. Messrs. L. J. Couves and Partners, architects, Carliol House; West Blandford-street, for the C.W.S. (C.W.S. Building Dept.); Northumberland-street, for Messrs. Marks and Spencer, Ltd. (Messrs. Norman Jones and Rigby, architects, Southport); Northumberland-street, for Messrs. Henry Dodgeon, Ltd. (Mr. C. S. Errington, architect, 46, Grainger-street); Messrs. C. and A. Modes, Ltd., Northumberland-street, and Albion-road, W. Riddle, architect, 53, Denham-terrace, Wallsend; Messrs. Hindson and Sons, printers, Town-street, Pandon, Bury, architects, Messrs. Hetherington and Wilson; L. and N. Stores, James-street, architect, Mr. J. R. Sherwood, 32, Clayton-street; Portland-road, for Messrs. J. Dampney and Co. (Messrs. Page, Son and Bradbury, architects, 75, King-street, South Shields). Builders: Messrs. Gordon Durham and Co., East Boldon, and ferro-concrete engineers, Messrs. L. G. Mouchel and Partners, 25, New Bridge-street, Newcastle-on-Tyne; St. Nicholas-chambers, for Messrs. G. H. Storey, Sons and Partners, New Bridge-street, by direct labour. Messrs. Cackett, Burns Dick and MacKellar, architects, 21, Ellison-place; Bigg Market, for Messrs. Bainbridge and Co., Ltd., Mr. J. W. Taylor, architect, St. John-street. Builder: Mr. F. J. Hepple, Dunn-street, Newcastle-on-Tyne; Stowell-street, for Messrs. Davison and Pickering. Mr. J. R. Wallace, architect, 20, Northumberland-square, North Shields. Contractors: Messrs. Hutchinson and Co., Elswick-road; Albion Row, for Lee Holme and Co., Mr. W. Riddle, architect, 53, Denham-terrace, Wallsend. Contractor: H. Waller, Bk. Waller-street.

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NEWCASTLE-UNDER-LYME.—The T.C. proposes shelters for 6,000 people at Newcastle, Wolstanton, Silverdale, Chesterton; and 15 air raid wardens' posts on various sites. The E.C. propose air raid shelters for schools at £24,000.

NORMANTON.—The U.D.C. is to erect communal air raid shelters for 50 persons each at Normanton and Altofts.

NORTH SHIELDS.—A cleansing station is to be built in Milbourne-terrace for Messrs. Smith's Dock Co., Ltd. The architect is Mr. W. Stockdale, 73, Howard-street, North Shields, and the contractors are Messrs. Hastie D. Burton, Ltd., North Shields.

PAISLEY.—Plans have been prepared by Messrs. C. Davidson and Son, 27, High-street, for shelters for the East and Kibble schools, and by Messrs. Abercrombie and Steel Maitland, 1, Gilmour-street, County-square, for the Carlesbrook-street school and the school at Nether Crays.

PRESTON.—The T.C. propose wardens' and first-aid posts, alterations to Argyle-road Yard for centre and protective works at the Municipal Building, at £4,150.

PUDSEY. — The T.C. are to erect public shelters on 16 sites.

ROTHERHAM. — The R.D.C. proposes shelters, at £10,000. Mr. A. E. Lant, surveyor, has prepared the plans.

RUISLIP.—The U.D.C. has approved plans for air raid shelter in Victoria-road, South Ruislip, for Mr. J. W. Walker, and shelters at St. Vincent's Hospital, Eastcote, for Mr. H. W. Binns.

SHEFFIELD.—The T.C. propose a cleansing station at the junction of Woodholm-road and Mill House-lane, Ecclesall Tram Terminus; construction of permanent trenches in the Central area, at £9,500; and alterations to the police headquarters for A.R.P. work, at £2,500.

STANLEY.—The U.D.C. is to build communal air raid shelters.

STOCKPORT.—The E.C. proposes air raid shelters for council schools, at £21,000.

STOKE-ON-TRENT.—The T.C. are to erect 327 air raid shelters at schools, at £51,000.

SUNDERLAND.—The T.C. is to proceed with 10,000 surface air raid shelters and also basement shelters at large premises in the town, the latter to accommodate 5,000 people; 100 are to be erected by direct labour and the others by local builders. Messrs. Stephenson and Gillis, Saville-chambers, Newcastle, are the architects for a shelter at Messrs. Winberg's factory.

TWICKENHAM. — A.R.P. cleansing stations are to be erected at Oldfield-road depot and Hampton and North-lane depot, Teddington, for the T.C. Mr. Gilbert R. King, F.S.I., Municipal Offices, is the architect. The contract has been placed with Messrs. E. Weaver and Sons, Teddington.

WALSALL.—The T.C. are to erect shelters to schools at £14,000.

WARRINGTON. — The T.C. proposes trenches and surface shelters for 5,000.

WEMBLEY.—The T.C. has placed contracts for cleansing stations as follows: Vale Farm station, E. R. Terry, Ltd.; Sherrens Farm station, A. Waddington and Son, Ltd.; and Alperton-lane station, Percy Bilton, Ltd.

WEST BROMWICH.—For erection of shelters at Charlemont school, Hamstead school and J. E. Cox school, the T.C. has accepted the tenders of Messrs. R. A. Davies (Birmingham), Ltd., 1, Waterloo-street, Birmingham; T. Johnson (Contractors), Ltd., Great Brook-street, Aston Cross, Birmingham, and Gibson's Concrete Products, Ltd., Albion, West Bromwich. Mr. J. C. Jefferson, Borough Engineer and Surveyor.

WIGAN. — The E.C. propose shelters at schools, at £12,700.

WORKINGTON.—The T.C. is to construct 15 air raid shelters, at £8,000. Plans by the Borough Surveyor, Mr. A. B. Cooper.

WORKSOP.—The T.C. proposes shelters in Carlton-road, Sandy-lane, Detherton-road, Castle Hill, Cheapside, etc.

YORK.—Precast concrete trench linings in connection with the scheme for providing public shelters are to be provided by Messrs. Concrete, Ltd., Stourton, Leeds, 10, at £3,059, for the T.C.

"Sandbag Walling."

The sandbag wall shown on page 566 of our special issue on "Air Raid Precautions in Practice" last week was built by Messrs. L. E. Nunn, Ltd., 431, Edgware-road, W.2. Messrs. Nunn have carried out a great amount of A.R.P. construction in London and the Home Counties.

NEW BUILDINGS IN LONDON

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Where business representatives cannot be seen personally at this stage, this should be mentioned. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

ACTON.—EXTENSIONS.—Are to be made to the factory premises in Acton-lane, W.4, for Messrs. Eversheds and Vignoles, Ltd. Messrs. Stanley Peach and Partners, 28, Eccleston-square, S.W.1, are the architects. Messrs. Wm. Moss and Sons, Ltd., North Circular-road, Cricklewood, N.W.2, are the contractors. The work is now being proceeded with at a cost of about £7,000.

BROMLEY.—FACTORY.—Plans have been submitted to the Lewisham B.C. by Mr. J. C. Anderson, architect, 81, High-street, Lewisham, S.E.13, to erect factory on site west side of Ashgrove-road, Bromley.

BROMLEY. — SHOPS. — The T.C. has approved plans submitted by Mr. W. C. Powell for 11 shops in the High-street.

LEWISHAM.—MARKET.—Messrs. Wright and Renny, architects, 1, Powis-street, Woolwich, S.E.18, have prepared plans for an open market in place of a covered market on site of 10-16, Holbeach-road. Part of the scheme will probably be carried out.

SLOUGH. — FACTORY. — Plans have been submitted to the T.C. by Messrs. Foamite, Ltd., 55, Great Marlborough-street, W.1, for factory building off Station-road, Langley.

WESTMINSTER. — OFFICES. — To be known as blocks Nos. 7 and 8, Marsham-street, S.W.1, are to be erected for the Associated London Properties, Ltd., St. Ermins, Caxton-street, S.W.1. Messrs. T. P. Bennett and Son, 19, North-road, Highgate, N.6, are the architects, and the quantities are by Messrs. Gardiner and Theobald, 96, Gower-street, W.C.1. Messrs. L. G. Mouchel and Partners, Ltd., 38, Victoria-street, S.W.1, are the consulting engineers for reinforced concrete work. The contract has been placed with Sir Robert McAlpine and Sons (London), Ltd., 50, Pall Mall, S.W.1. Block No. 8 is now being proceeded with.

NEW CINEMAS

SHEFFIELD.—Mr. W. W. Organ, 9, St. James-row, Sheffield, has submitted plans for the erection of a cinema in Peel-street, Nile-street and Chandos-street.

SHEFFIELD.—The T.C. have approved plans for the erection of a cinema in Stanniington-road. The architects are Messrs. Chapman and Jenkinson, 18, Norfolk-row, Sheffield.

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TRADE NEWS

Sand-lime Bricks.

We are informed by the Ryarsh Brick and Sand Co., Ltd., that they are carrying on the manufacture of sand-lime bricks, which are still obtainable in the usual variety of colours. Deliveries can be made in reasonable time. Inquiries should be addressed to 14, Howick-place, S.W.1.

Messrs. Doulton's New Premises.

Messrs. Doulton and Co., Ltd., are not only maintaining their headquarters at Lambeth, London, S.E.1, but also hope that before the end of the year they will be able to occupy their new head offices and showrooms on the corner of the Albert Embankment, facing Lambeth Bridge.

Although at the moment national requirements are making heavy demands on the production of all seven Doulton Works, every effort is being made to maintain the company's usual services to architects, builders, surveyors and engineers.

Anti-Flooding Interceptor Ball Trap.

We acknowledge with thanks replies from Messrs. G. W. Harris, A. J. Carpenter and G. W. J. Eden to an inquiry published in our last issue with regard to the "Couzens" anti-flooding interceptor ball trap. These have been forwarded to our querist. In the course of his letter, Mr. G. W. J. Eden writes as follows:—

"At the time I used these traps I was surveyor to a brewery company in a town near the sea, where the district was very flat, and at certain stages of the tide there was difficulty in disposing of sewage, which caused flooding in the cellars of the public-house with which I was concerned. I found the 'Couzens' trap very successful in stopping this trouble at the interceptor, and I also found the gulley of similar type which they made very useful in the cellars. One point, however, which had to be watched was to see that no débris got into the trap, and this was important on the entry side, as even such a small thing as a match happening to get into the seating of the ball just at the time when the backwater was rising would stop the effective sealing of the trap, and this is a point your correspondent should watch, if he is not already aware of it."

BUILDINGS ILLUSTRATED

LONDON COUNTY HALL EXTENSION.

For the extension of London County Hall, S.E. (Mr. F. R. Hiorns, F.R.I.B.A., Architect to the Council, in association with Mr. E. P. Wheeler, F.R.I.B.A.; consulting architect, Sir Giles Gilbert Scott, R.A.), Messrs. Higgs and Hill, Ltd., South Lambeth-road, S.E., were the general contractors. The chief sub-contractors and suppliers were:—

Reinforced building *re* ash handling plant, J. L. Kier and Co., Ltd.; plastering and granolithic, W. A. Telling, Ltd.; electric clocks, Smith's English Clocks, Ltd.; plumbing, r.w. goods and heating installation; The Plumbing Guild, Ltd.; roof tiling, Williams Smith and Evans, Ltd.; Portland stonework, South Western Stone Co., Ltd.; asbestos piping and sheets, Turners Asbestos Cement Co.; granite, Fencing and Co., Ltd.; steel tanks, Braithwaite and Co., Ltd.; ironwork, Clark, Hunt and Co., Ltd.; terrazzo paving, etc., Diespeker and Co., Ltd.; heating and hot-water plant, J. Jeffreys and Co., Ltd. (in association with R. Crittall and Co., Ltd., G. N. Haden and Sons, Ltd., and Norris Warming Co., Ltd.); ornamental ironwork, J. Starkie Gardner, Ltd.; electrical work and lightning conductor, W. J. Furse and Co., Ltd.; wood block flooring, Hollis Bros. and Co., Ltd.; asbestos insulation, Newalls Insulation Co.; pump installation, Adams Hydraulics, Ltd.; lighting fittings, Osler and Faraday, Ltd.; petrol installation, Petroil Installations, Ltd.; steel casements and doors, Henry Hope and Sons, Ltd.; stone and Marble, W. W. Jenkins and Co., Ltd.; pavement lights, J. A. King and Co., Ltd.; asphalt, General Asphalte Co., Ltd.; sprinkler installation, Automatic Sprinkler Co., Ltd.; constructional steel, Redpath, Brown and Co., Ltd.; and copper work, L. Carter and Son, Ltd.

CONTRACTS OPEN

For some contracts still open, but not included in this list, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender, that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender, unless stated to the contrary. The dates at the head of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained. Abbreviations: (A) for A.R.I.B.A.; B. of E. for Board of Education; B.C. for Borough Council; B.E. for Borough Engineer; B.S. for Borough Surveyor; C. for Clerk; C.B. for County Borough; C.C. for County Council; C.E. for County Engineer; C.S. for County Surveyor; D.S. for District Surveyor; E. for Engineer; E.C. for Education Committee; (F.) for F.R.I.B.A.; (L.) for L.R.I.B.A; M.W.B. for Metropolitan Water Board; M.H. for Ministry of Health; M.T. for Ministry of Transport; P.C. for Parish Council; R.D.C. for Rural District Council; S. for Surveyor; T.C. for Town Clerk and Town Council; and U.D.C. for Urban District Council.

BUILDING.

OCTOBER 20.

†**Newcastle-upon-Tyne E.C.** — Structural alterations to basement of Education Office. Thos. Walling, Director of Education, Education Office, Northumberland-rd., Newcastle-upon-Tyne, 2. Dep. 5s.

OCTOBER 21.

Hartlepool T.C.—105 brick surface domestic shelters. J. H. Miers, B.E. and S. Dep. £2 2s.

OCTOBER 23.

Aberdeen.—Reslating of byre roofs at Hutcheon-st. slaughterhouse, for Aberdeen Flesher Incorporation. Boxmaster, 100, Hutcheon-st.

Cork T.C.—Repairs to working-class dwellings. C. Harrington, T.C.

Croydon C.B.—Public surface shelters on six different sites within Borough. B.E. Dep. £1 1s.

Epsom and Ewell T.C.—Garages and stores at electricity station, Depot-road, and decontamination centre, Epsom depot, Depot-road. Norman Auty, B.E. and S. Deposit £1 1s. each.

Longford U.D.C.—22 four-roomed houses, including development of site, erection of fences, construction of roads and laying of water and sewer mains. L. McNally, B.E., Longford. Deposit £3 3s.

Port Talbot T.C.—12 public air-raid shelters. B.E. Deposit £2 2s.

OCTOBER 24.

Ardagh.†—Entrance to residence of M. Farrelly at Oldtown House, Ardagh, County Longford, Eire. E. Redehan, E.

Belfast T.C.—Alterations to form first-aid post at A.R.P. Department, Academy-st. City Surveyor (Architectural Section, Room 91), City Hall.

Hendon T.C.—Two cleansing stations: (a) Hendon-gr., N.W.4; (b) Claremont-rd., N.W.2. A. O. Knight, B.E. and S. Dep. £4 4s.

Northampton R.D.C.—Approximately 5,600 superficial yards concrete paving at housing sites. R. J. Miller, S., 1, Spencer-parade. Dep. £1 1s.

OCTOBER 25.

Bacup T.C.—A.R.P. surface shelters at schools. H. Guffogg, B. and Water E.

Clitheroe T.C.—13 communal surface or semi-sunk air-raid shelters and adaptation of two existing buildings for use as air-raid shelters. B.S. Deposit £2 2s.

Ealing T.C.—Dismantling of three chimney shafts at Council's southern works, South Ealing-rd., W.5. C. W. Seddon, B.E. and S.

Lewisham B.C.—Extensions to town hall in Catford-road up to ground level to include a reinforced concrete control centre and public air raid shelter. J. T. Duff, T.C. Deposit £2 2s.

OCTOBER 26.

Newport (Mon.) C.B.—Erection of number of brick and/or concrete domestic surface shelters. B.E.

Stratford-on-Avon R.D.C.—Repairs to 10 Council houses. H. J. Weeks, S., 11, Guild-st.

OCTOBER 30.

***Brentford and Chiswick T.C.**—Cleansing stations and accommodation for personnel at River depot, Corney-rd., Chiswick, and Town Meadow depot, High-st., Brentford. L. A. Cooper (L.), B.E. and S. Dep. £2 2s.

OCTOBER 31.

North Westmorland R.D.C.—Eight water-closets and three coal-houses, and repairs to existing out-offices at Shordale-cottages, Warcop. A. Knewstubb (L.), architect and surveyor, St. Andrew's-chamb., Penrith.

NOVEMBER 2.

Petworth R.D.C.—Pumping station. J. Taylor and Sons, engineers, Caxton House, Westminster, S.W.1. Dep. £5.

NOVEMBER 6.

Cheshire C.C.—Child welfare centre at Okell-st., Runcorn. F. Anstead Browne (F.), County Architect, The Castle, Chester. Dep. £2 2s.

Flintshire C.C.—Conversion of bedroom to bathroom at Mynydd Isa, near Mold, and conversion of store-room to bathroom, etc., at Kinnerton. T. Duncan Cameron, County Agricultural Officer, Mold

NOVEMBER 7.

Wicklow U.D.C.—10 houses at Ballynerrin and 34 houses in other parts of town, etc. J. T. O'Byrne, Consulting E., Wicklow. Dep. £10 10s.

WEMBLEY
TOWN
HALL
ARCHITECT
CLIFFORD STRANGE ESQ
MARBLE
DECORATION
JOHN STUBBS
MARBLE & QUARZITE LTD
272 CROWN ST. LIVERPOOL 8
THESSALY RD. BATTERSEA SW8

PAINTING, ELECTRIC LIGHTING, HEATING, &c.

OCTOBER 21.

Cheshire C.C.—Heating apparatus in connection with Sir John Deane's Grammar School, Northwich. A. W. Chambers, clerk to the Governors, 16, Winnington-st., Northwich.

Congleton R.D.C.—Painting 75 council houses. R. O. Birtwistle, S., Middlewich-rd., Sandbach.

OCTOBER 23.

Baldock U.D.C.—Internal decoration of 27 houses on Pinnocks-la. and Clothall-rd. housing estates. L. R. Brown, S.

Solihull and Meriden Joint Isolation Hospital Committee.—External painting, etc., at Joint Isolation hospital, Catherine-de-Barnes, Solihull. A. W. Liggins, C., Trinity House.

Strabane District Hospital.—Providing and installing of low-pressure hot-water heating plant in hospital. J. L. Rankin, clerk, Strabane.

OCTOBER 30.

Scottish Special Housing Association, Ltd.—Installation of central heating system, hot-water supply and steam system at following evacuation camps: Middleton, Goubridge Belmont, Meigle, Glengonnar, Abington; Dounans Farm, Aberfoyle. N. J. Campbell, sec., 11, Drumsheugh-gdns., Edinburgh, 3

Wicklow Board of Health.—New fence at Mount Kennedy Demesne Cottage site. P. J. Foley, E., 32, Lr. Abbey-st., Dublin.

NOVEMBER 14.

Magherafelt.—Heating, plumbing and electrical installation at additions to Rainey's endowed school, Magherafelt, for Rainey's School Board. Hobart and Heron, Scottish architects, Provident-bldgs., Belfast.

South Shields E.C.—Cleaning and painting of several schools. Sec., Education Dept.

Preston C.B.—Belfast roof to cover an area of approximately 89 ft. 7 in. by 51 ft. Borough Electrical Engineer, 41, Lune-st. Deposit £1.

MATERIALS, &c.

OCTOBER 31.

Egyptian Irrigation Department.—One circular elevated water tank. Inspecting Engineer to the Egyptian Government, 41, Tothill-street, London, S.W.1.

NOVEMBER 1.

Cams. C.C.—Road materials. C.S., Cambridge.

Northamptonshire C.C.—Washed pit gravel for surface dressing. E. A. Black, C.S., Northampton.

NOVEMBER 13.

South African Railways and Harbours Administration.—Pig iron, ferro-manganese and ferro-silicon. Secretary to Tender Board, Room 420, South African Railways and Harbours, Headquarters Offices, Johannesburg.

NOVEMBER 18.

Bath T.C.—Spatar macadam and clean broken stone. City E.

ENGINEERING, IRON AND STEEL.

OCTOBER 24.

Egyptian Government.—Evacuating pumping set for Ameria Pumping Station, for Director-General, Main Drainage Department, No. 4, Sharia El-Antikkhana, Cairo. Inspecting Engineer, 41, Tothill-street, London, S.W.1.

Stone Rural District Council.—Contract No. 2 (1st section) for Barlaston sewerage. Willcox, Raikes and Marshall, engineers, 33, Great Charles-street, Birmingham, 3. Deposit £3 3s.

OCTOBER 28.

Scalby U.D.C.—Covered reservoir. T. E. Dearmer, E. and S. Dep. £3 3s.

OCTOBER 30.

Macclesfield T.C.—Filtration plant at Ridgegate reservoir. H. Lapworth and Partners, engineers, 25, Victoria-st., Westminster, S.W.1. Dep. £2.

OCTOBER 31.

Egyptian Government. — Pumping and generating station near Wasta in Beni Suef Province, for Ministry of Public Works. Chief Inspecting Engineer, 41, Tothill-street, London, S.W.1. Charge £3 1s. 6d.

NOVEMBER 1.

Egyptian Government.—Supply, delivery and erection of Zawamel Bridge over Ismailia Canal Kilo 37.450, complete with necessary building work, steelwork, fenders, accessories, etc., and removal of the existing bridge, for Ministry of Public Works, First Circle of Irrigation. Inspector of Irrigation, First Circle, Ministry of Public Works, Cairo.

NOVEMBER 2.

South African Railways and Harbour Administration.—Steelwork, bolts, rivets, etc. Department of Overseas Trade, 35, Old Queen-street, London, S.W.1. (Ref. T.26863/39.)

NOVEMBER 4.

Ripon T.C.—Covered service reservoir with mass concrete walls and reinforced concrete roof, together with all necessary ancillary works, in parish of Studley Roger. Silcock and Simpson, consulting engineers, 10, Park-row, Leeds, 1. Deposit £5.

Stafford Rural District Council.—Laying of about 188,920 yds. of mains and valves and fittings, in Adbaston, Bradley, Church Eaton, Ellenhall, Forton, Gnosall, Haughton, High Offley, Norbury, Ranton, Weston Jones, and special castings, and construction of a mass concrete reservoir, near Knightley Grange, and also construction of a brick pumping station near Gnosall. Elliott and Brown, consulting engineers, Burton-buildings, Parliament-street, Nottingham. Deposits £4 4s. each contract.

NOVEMBER 6.

Dawlish U.D.C.—Filtration plant, Contract No. 3, near Burrows reservoir. Lemon and Blizard, Consulting Engineers, 24, Lockyer-st., Plymouth. Deposit £3 3s.

NOVEMBER 8.

Highworth R.D.C.—Sewerage and sewage disposal works in parish of Wroughton. A. H. S. Waters, E., 25, Temple-row, Birmingham, 2. Dep. £5 5s.

North Cork Board of Health.—Drainage scheme, including laying mains, erection of purification works, pump-house, ejector, filters, fencing, etc., at Newmarket. D. C. Murphy, Sec., Secretary's Offices, County Hospital, Mallow. Dep. £20.

NOVEMBER 21.

Ipswich C.B.—Steelframe buildings for boiler and turbine house, and 110-ton and other electric overhead travelling cranes, at new power station, Cliff Quay. Merz and McLellan, engineers, Milburn, Milbourne-lane, Esher. Dep. £5 5s. each.

ROAD, SEWERAGE AND WATER WORKS.

OCTOBER 25.

Middlesbrough C.B.—1,000, 2,000 or 3,000 chemical closets for use in shelter accommodation. Cecil Gorman, M.Inst.C.E., B.E., Architect and S.

OCTOBER 27.

Northern Water Board (Isle of Man).—Laying of 3-in. and 4-in. Everite pipelines, together with lead service pipes, etc. C. H. K. Mealin, clerk to Board, Parliament-sq., Ramsey, I.O.M. Deposit £2 2s.

Auctioneers' and Estate Agents' Institute: Examination Results.

The pass list of the preliminary and professional examinations of the Auctioneers' and Estate Agents' Institute, held in July last, has been issued.

CURRENT AND PROPOSED BUILDING WORK

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Where business representatives cannot be seen personally at this stage, this should be mentioned. Items should reach 4, Catherine-street, Aldwych, W.C., not later than Wednesday morning.

Ballymena.—Ministry of Home Affairs given consent to R.D.C. for 106 cottages.

Barrow. — T.C. approved :—16 semi-detached houses, Hollow-la., Hornby Building Co.

Birmingham.—Bus garage to accommodate 150 vehicles at junction of Ridgacre-rd. and Ridgacre-la., Quinton, for T.C. Gateley and Parsons, 105, Colmore-row, architects. Cost, £105,000.

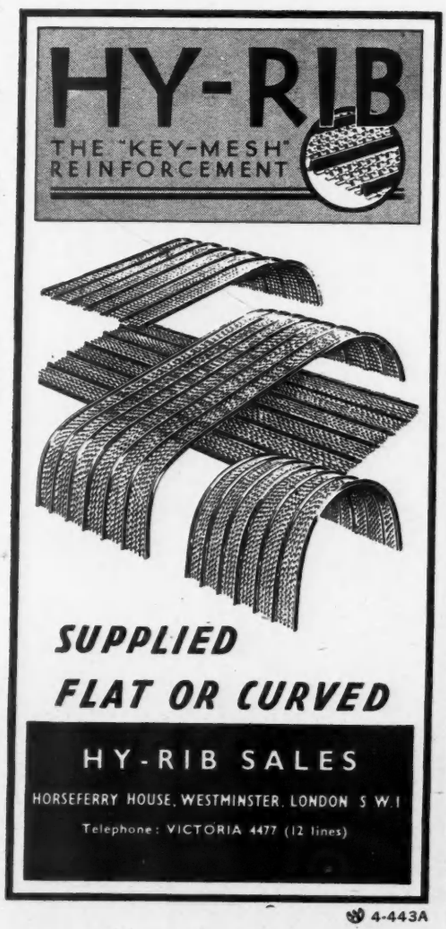
Blackpool.—C.B. approved : — Clarke & Rutherford, Promenade, Banks-st., hotel; Ramsden Bros., Ltd., Lawson, Lancaster, Doncaster-rds., 35 houses and 25 garages; Corporation, Derby Baths, Warley-rd., remedial wing; Tyldesley school, Somerset-ave., gymnasium, stores.—Extensions at Rigby-rd. transport depot to be proceeded with.—Government to take area of land in vicinity of Victoria Hospital for use for emergency hospital purposes. —New works at Marton gasworks to be proceeded with.

Bolton.—T.C. to complete reconstruction of Hulton-la. bridge; completion of Hulton-la. Hospital extensions; and Kay-st. housing scheme.

Corby.—Stewarts and Lloyds, Ltd., ironworks to complete 115 houses, Latimer-rd.

***See also List of Contracts Open.**

***** In these lists every care is taken to ensure that information given is accurate and up to date, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced.**



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Dukinfield.—T.C. to complete 100 houses at Victoria Farm site and Astley Mill site.

Durham.—County E.C. received B. of E. sanction for improvements at Bearpark council school, and gymnasium at Burnopfield school.—Final plans to be prepared for school at Murton.

Farnborough.—New buildings at Salesian College, Queen's-rd., for Governors of Salesian College. G. Raymond, Hermiston, Cliddesden-rd., Basingstoke.

Keighley.—Plans approved by T.C.—Church, Bradford-rd., Morton, Rev. J. Hawkswell; 29 houses, Fellwood-av., Harry Burrell; clinic, Goodley, Oakworth, for Corporation; air raid shelter, Hanover-st., for Keighley Industrial Co-operative Society.

Little Sutton.—Cheshire County E.C. authorised the County Architect, F. Anstead Browne (F.), The Castle, Chester, to prepare final plans of proposed school.

London (M.W.B.).—Board recommend repair work to gates, fencing, valve chambers and subways at Kempton to Bishops Wood pipe-track, at £1,765.

Manchester.—T.C. approved plans :—

Store to brewery, Pinapple-st., Gorton, for Openshaw Brewery Co., Ltd., Brook-st. (E. Ogden and Co., architects, 1, Ridgefield).—School, Yew Tree-rd., Rusholme, for Rev. R. McGuinniss (Hill, Sandy and Norris, architects, 9, Albert-sq.).—Galvanising works and offices, Bower-st., Newton Heath, for Lever Galvanizing Co. (Manchester), Ltd. (R. Thomasson, architect, 87, Mosley-st.).—Extension to printing works, Dickenson-rd., Hamilton-rd., and Rainforth-st., Rusholme, for Co-operative Wholesale Society, Ltd., Balloon-st. (plans prepared in Architects' Department).—Office, Bower-st., Newton Heath, for Tootal Broadhurst Lee and Co., Ltd., Oxford-st. (J. H. Sellers, architect, 78, King-st.).—38 houses, Windsor-rd., and Windsor-cres., Crumpsall, for J. G. Whitelegg, builder, Sheepfoot-la., Heaton Park, Prestwich.

Morecambe and Heysham.—T.C. approved : Houses, Norland-av., Faithope Estates, Ltd., Westgate, White Lund; shops and flats, Marine-rd., Winter Gardens Morecambe and Heysham, Ltd.

North Shields.—Smiths Dock Co., Ltd., to build workshops in their ship repairing yard. Engineers, T. Hanning & Partners, 2, Collingwood-street, Newcastle.

Rowley Regis.—Plans approved by Corporation for 313 houses at Tividale, Tipton, for A. and J. Mucklow, Ltd., builders, Haden Cross, Haden Hill, Old Hill, near Dudley.

Ruislip and Northwood.—U.D.C. approved : Additions to existing church hall, St. Laurence Church, Bridle-rd., Eastcote. Hon. John Seely and Paul Paget, architects.

Scarborough.—T.C. decided to proceed with plans for slipway adjoining West Pier to give access to new lifeboat house, and Cayton Bay new pumping station and mains.—Officials to proceed with all stages up to demolition in connection with clearance plans concerning William-st., Cooks-row and North Terrace-gdns.

South Shields.—Magistrates approved plans for reconstruction and extension of Station Hotel, Mile End-rd., for R. Denchar, Ltd., 146. Sandyford-rd., Newcastle-on-Tyne. Architects, T. A. Page, Son and Bradbury, 75, King-st.

Sunderland.—Scheme approved to extend steam-raising plant at Highfield Institution, at revised cost of £28,875. J. E. Lewis, B.E.

Wakefield.—T.C. acquired "Bishopsgarth" for conversion into Forensic Laboratory and cottages, at £7,000.—Plans approved : Premises, Westmoreland-st., for G. F. Ziegler, Newton Hill (J. P. Macleod, architect, 21, King-st.); block of shops, junction of Peacock-av., Batley-rd., for — Bowman (C. H. Crowther, architect, 38, Cookridge-st., Leeds).

Wellington.—R.D.C. approved plans for police house at Bradford, and senior elementary school at Wiveliscombe.

Workington.—Cumberland Cloth Co. proposes factory at Siddick. Architects, Sir Alexander Gibb and Partners, Queen Anne Lodge, Westminster, London, S.W.1.

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st FEBRUARY, 1939

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors]

	Craftsmen.	Labourers.
Aberavon	1/7½	1/2¾
Aberdare	1/7½	1/2¾
Abergavenny	1/7	1/2¼
Abingdon	1/6	1/1½
Accrington	1/7½	1/2¾
Aldeburgh	1/4	1/0
Aldershot	1/6	1/1½
Alfreton	1/7½	1/2¾
Alnwick	1/7	1/2¼
Altrincham	1/7½	1/2¾
Amble	1/7	1/2¼
Amersham	1/6	1/1½
Ammanford	1/7½	1/2¾
Andover	1/5½	1/1¾
Ardingley	1/5½	1/1¾
Arundel	1/5½	1/1¾
Ascot	1/5½	1/1¾
Ashby-de-la-Zouch	1/6	1/1½
Ashford (Kent)	1/5½	1/1½
Ashford(Middlesex)	1/7½	1/2¾
Ashington	1/7	1/2¼
Ashtead	1/7½	1/2¾
Ashton-under-Lyme	1/7½	1/2¾
Aylesbury	1/5½	1/1½
Aylsham	1/4½	1/0½
Bagshot	1/5½	1/1¾
Banbury	1/5½	1/1¾
Barnsley	1/7½	1/2¾
Barnstaple	1/5½	1/1¾
Barrow-in-Furness	1/7½	1/2¾
Barry	1/7½	1/2¾
Basingstoke	1/5½	1/1½
Bath	1/7	1/2¼
Batley	1/7½	1/2¾
Beaconsfield	1/6	1/1½
Beccles	1/4	1/0
Bedford	1/7	1/2¼
Berkhamsted	1/5½	1/1¾
Berwick	1/7	1/2¼
Beverley	1/7½	1/2¾
Bexhill-on-Sea	1/6	1/1½
Bideford	1/5½	1/1¾
Biggleswade	1/5	1/0¾
Billericay	1/5	1/0¾
Birchington	1/5½	1/1¾
Birkenhead	‡§1/10	¶
Birmingham	1/7½	1/2¾
Bishop Auckland	1/7½	1/2¾
Bishops Stortford	1/6½	1/2
Blackburn	1/7½	1/2¾
Blackpool	1/7½	1/2¾
Blyth	1/7½	1/2¾
Bognor Regis	1/5½	1/1¾
Bolton	1/7½	1/2¾
Bournemouth	1/6½	1/2
Bracknell	1/5½	1/1¾
Bradford	1/7½	1/2¾
Bradford-on-Avon	1/4½*	1/0½
Braintree	1/5½	1/1¾
Brentwood	1/7	1/2¼
Bridgwater	1/6	1/1½
Bridlington	1/7	1/2¼
Brighouse	1/7½	1/2¾
Brighton	1/6½	1/2
Bristol	1/7½	1/2¾
Broadstairs	1/5½	1/1¾
Bromsgrove	1/7	1/2¼
Buckley	1/7½	1/2¾
Bungay	1/3½	11¾
Burnham-on-Crouch	1/4	1/0
Burnley	1/7½	1/2¾
Burslem	1/7½	1/2¾
Burton-on-Trent	1/7½	1/2¾
Bury	1/7½	1/2¾
Bury St. Edmunds	1/5	1/0¾
Buxton	1/7	1/2¼
Byfleet	1/6	1/1½
Cambridge	1/7	1/2¼
Canterbury	1/5½	1/1¾
Cardiff	1/7½	1/2¾
Carlisle	1/7½	1/2¾
Carnforth	1/7½	1/2¾
Castleford	1/7½	1/2¾
Caterham	1/7½	1/2¾
Chard	1/4½*	1/0½
Chatham	1/6½	1/2
Chelmsford	1/7	1/2¼
Cheltenham	1/6½	1/2
Chepstow	1/6½	1/2
Chertsey	1/6½	1/2
Chester	1/7½	1/2¾
Chesterfield	1/7½	1/2¾
Chichester	1/5½	1/1¾
Chorley	1/7½	1/2¾
Cirencester	1/5*	1/0¾
Clacton	1/5½	1/1¾
Cleveleys	1/7½	1/2¾
Clitheroe	1/7½	1/2¾
Cobham (Surrey)	1/6½	1/2
Colchester	1/7	1/2¼
Colwyn Bay	1/6½	1/2
Congleton	1/7	1/2¼
Coventry	1/7½	1/2¾
Cranbrook	1/5½	1/1¾
Cranleigh	1/5½	1/1¾
Crawley	1/5½	1/1¾
Crewe	1/7	1/2¼
Cromer	1/4½	1/0½
Crowborough	1/5½	1/1¾
Cuckfield	1/5½	1/1¾
Darlington	1/7½	1/2¾
Darwen	1/7½	1/2¾
Daventry	1/6	1/1½
Deal	1/5½	1/1¾
Denbigh	1/6	1/1½
Derby	1/7½	1/2¾
Devizes	1/4*	1/0
Dewsbury	1/7½	1/2¾
Didcot	1/5½	1/1¾
Diss	1/4	1/0
Doncaster	1/7½	1/2¾
Dorchester	1/5*	1/0¾
Dorking	1/6	1/1½
Dover	1/5½	1/1¾
Dovercourt	1/5½	1/1¾
Driffield	1/6	1/1½
Droitwich	1/7	1/2¼
Dudley	1/7	1/2¼
Dunstable	1/6	1/1½
Durham City	1/7½	1/2¾
Eastbourne	1/6½	1/2
E. Glam. (Mon. Val.)	1/7½	1/2¾
East Grinstead	1/5½	1/1¾
Edenbridge	1/5½	1/1¾
Ely	1/4	1/0
Epping	1/7½	1/2¾
Exeter	1/7†	1/2¼
Exmouth	1/6	1/1½
Fakenham	1/4½	1/0½
Falmouth	1/6	1/1½
Fareham	1/6½	1/2
Faversham	1/5½	1/1¾
Felixstowe	1/6½	1/2
Filey	1/6	1/1½
Fleetwood	1/7½	1/2¾
Flint	1/7½	1/2¾
Folkestone	1/5½	1/1¾
Frinton-on-Sea	1/5½	1/1¾
Frome	1/4½*	1/0½
Gainsborough	1/6½	1/2
Gateshead	1/7½	1/2¾
Gillingham (Kent)	1/6½	1/2
Glossop	1/7½	1/2¾
Gloucester	1/7†	1/2¼
Godalming	1/5½	1/1¾
Goole	1/7½	1/2¾
Gosport	1/7	1/2¼
Grantham	1/6½	1/2
Gravesend	1/7	1/2¼
Great Yarmouth	1/5½	1/1¾
Grimsby	1/7½	1/2¾
Guildford	1/5½	1/1¾
Guilsborough	1/6	1/1½
Halifax	1/7½	1/2¾
Hanley	1/7½	1/2¾
Harpenden	1/6½	1/2
Harrogate	1/7½	1/2¾
Hartlepools	1/7½	1/2¾
Harwich	1/5½	1/1¾
Haslemere	1/5½	1/1¾
Hastings	1/5½	1/1¾
Hatfield	1/7	1/2¼
Haywards Heath	1/5½	1/1¾
Hednesford	1/7	1/2¼
Hemel Hempstead	1/6½	1/2
Henley-on-Thames	1/5½	1/1¾
Hereford	1/5½*	1/1¾
Herne Bay	1/5½	1/1¾
Hertford	1/7	1/2¼
Heysham	1/7½	1/2¾
Hitchin	1/6	1/1½
Hoddesdon	1/7	1/2¼
Holt (Norfolk)	1/4	1/0
Horley	1/5½	1/1¾
Horsham	1/5½	1/1¾
Horwich	1/7½	1/2¾
Huddersfield	1/7½	1/2¾
Hull	1/7½	1/2¾
Hunstanton	1/4½	1/0½
Huntingdon	1/5	1/0¾
Ilfracombe	1/5½	1/1¾
Ingatestone	1/6	1/1½
Ipswich	1/7	1/2¼
Isle of Thanet	1/5½	1/1¾
Isle of Wight	1/4½	1/0½
Keighley	1/7½	1/2¾
Kenilworth	1/7½	1/2¾
Kettering	1/7	1/2¼
Kidderminster	1/7	1/2¼
King's Lynn	1/5½	1/1¾
Kirkham	1/7½	1/2¾
Knowle	1/7	1/2¼
Lancaster	1/7½	1/2¾
Leamington	1/7½	1/2¾
Leatherhead	1/6½	1/2
Leeds	1/7½	1/2¾
Leicester	1/7½	1/2¾
Leighton Buzzard	1/4½	1/0½
Letchworth	1/6	1/1½
Lewes	1/5½	1/1¾
Lichfield	1/6½	1/2
Lincoln	1/7½	1/2¾
Littlehampton	1/5½	1/1¾
Liverpool	‡§1/10	¶
Llandudno	1/6½	1/2
Llanelly	1/7½	1/2¾
London—		
12 m. radius	1/9*	1/3¾
12-15 m. radius	1/8½*	1/3¾
Long Eaton	1/7½	1/2¾
Longton	1/7½	1/2¾
Loughborough	1/7½	1/2¾
Louth	1/6	1/1½
Lowestoft	1/5½	1/1¾
Luton	1/7	1/2¼
Macclesfield	1/7	1/2¼
Maidenhead	1/6	1/1½
Maidstone	1/6	1/1½
Malvern	1/6	1/1½
Manchester	1/7½	1/2¾
Manningtree	1/4½	1/0½
Mansfield	1/7½	1/2¾
March	1/4½	1/0½
Margate	1/5½	1/1¾
Market Harborough	1/6½	1/2
Matlock	1/6	1/1½
Melton Constable	1/4	1/0
Melton Mowbray	1/6½	1/2
Merthyr	1/7½	1/2¾
Middlesbrough	1/7½	1/2¾
Middleton	1/7½	1/2¾
Middlewich	1/7	1/2¼
Milford Haven	1/6	1/1½
Morecambe	1/7½	1/2¾
Morley	1/7½	1/2¾
Mundesley	1/4½	1/0½
Nantwich	1/7	1/2¼
Nelson	1/7½	1/2¾
Newark-on-Trent	1/7	1/2¼
Newbury	1/5½	1/1¾
Newcastle-on-Tyne	1/7½	1/2¾
Newcastle-u-Lyme	1/7½	1/2¾
New Forest	1/4½	1/0½
Newmarket	1/5½	1/1¾
Newport, Mon.	1/7½	1/2¾
Newport Pagnell	1/5½	1/1¾
Northampton	1/7½	1/2¾
Norwich	1/7½	1/2¾
Nottingham	1/7½	1/2¾
Nuneaton	1/7½	1/2¾
Oakham	1/6	1/1½
Oldham	1/7½	1/2¾
Ormskirk	1/7½	1/2¾
Oxford	1/7	1/2¼
Oxted	1/6	1/1½
Paignton	1/7	1/2¼
Peterborough	1/7	1/2¼
Plymouth	1/7½	1/2¾
Pontefract	1/7½	1/2¾
Pontypridd	1/7½	1/2¾
Port Talbot	1/7½	1/2¾
Portsmouth	1/7	1/2¼
Preston	1/7½	1/2¾
Pulborough	1/5½	1/1¾
Ramsgate	1/5½	1/1¾
Reading	1/7	1/2¼
Redditch (Northern)	1/6½	1/2
Redhill	1/6	1/1½
Ripon	1/6	1/1½
Rochdale	1/7½	1/2¾
Rochester	1/6½	1/2
Rugby	1/7½	1/2¾
Saffron Walden	1/4½	1/0½
St. Albans	1/7	1/2¼
St. Helens	1/7½	1/2¾
St. Neots	1/4½	1/0½
Salisbury City	1/4½*	1/0½
Salisbury Plain	1/6½*	1/2
Sawbridgeworth	1/6	1/1½
Saxmundham	1/4	1/0
Scarborough	1/7	1/2¼
Scunthorpe	1/7½	1/2¾
Selby	1/7½	1/2¾
Sevenoaks	1/6	1/1½
Sheerness	1/5	1/0¾
Sheffield	1/7½	1/2¾
Shipley	1/7½	1/2¾
Shoeburyness	1/7	1/2¼
Shoreham	1/6½	1/2
Shrewsbury	1/6½	1/2
Sittingbourne	1/5½	1/1¾
Skegness	1/6½	1/2
Sleaford	1/6	1/1½
Slough	1/6½	1/2
Southampton	1/7	1/2¼
Southend-on-Sea	1/7	1/2¼
Southport	1/7½	1/2¾
South Shields	1/7½	1/2¾
Spalding	1/5½	1/1¾
Stafford	1/7	1/2¼
Staines	1/6½	1/2
Stamford	1/6½	1/2
Stevenage	1/6	1/1½
Stockport	1/7½	1/2¾
Stockton-on-Tees	1/7½	1/2¾
Stoke-on-Trent	1/7½	1/2¾
Stourbridge	1/7	1/2¼
Stourport	1/7	1/2¼
Stowmarket	1/4½	1/0½
Stratford-on-Avon	1/6½	1/2
Stroud	1/6†	1/1½
Sunderland	1/7½	1/2¾
Sutton Coldfield	1/7½	1/2¾
Swaffham	1/4	1/0
Swanage	1/5½*	1/1¾
Swansea	1/7½	1/2¾
Swindon	1/6*	1/1½
Tamworth	1/7	1/2¼
Taunton	1/5½	1/1¾
Tenterden	1/5½	1/1¾
Thames Haven	1/7½	1/2¾
Thetford	1/5	1/0¾
Thorpe Bay	1/7	1/2¼
Todmorden	1/7½	1/2¾
Tonbridge	1/6	1/1½
Torquay	1/7	1/2¼
Totnes	1/5½	1/1¾
Trowbridge	1/4½*	1/0½
Truro	1/4½	1/0½
Tunbridge Wells	1/6	1/1½
Uppingham	1/6	1/1½
Uttoxeter	1/6	1/1½
Wakefield	1/7½	1/2¾
Walsall	1/7½	1/2¾
Walsden	1/7½	1/2¾
Walton-on-Naze	1/5½	1/1¾
Ware	1/7	1/2¼
Warminster	1/4½*	1/0½
Warrington	1/7½	1/2¾
Warwick	1/7½	1/2¾
Wellingborough	1/7	1/2¼
Welwyn	1/6½	1/2
Welwyn Gar. City	1/7½	1/2¾
Wells (Norfolk)	1/4	1/0
West Bromwich	1/7½	1/2¾
Westcliff-on-Sea	1/7	1/2¼
Weston-super-Mare	1/6½	1/2
Weybridge	1/6½	1/2
Weymouth	1/5*	1/0¾
Whitby	1/6½	1/2*
Whitstable	1/5½	1/1¾
Widnes	1/7½	1/2¾
Wigan	1/7½	1/2¾
Wigton	1/6	1/1½
Willington	1/7	1/2¼
Wilmslow	1/7½	1/2¾
Winchester	1/6	1/1½
Windermere	1/6	1/1½
Windsor	1/6½	1/2
Wisbech	1/5	1/0¾
Witham	1/5½	1/1¾
Woking	1/6	1/1½
Wokingham	1/5½	1/1¾
Wolverhampton	1/7½	1/2¾
Woodbridge	1/5	1/0¾
Worcester	1/7	1/2¼
Workington	1/6	1/1½
Worksop	1/7	1/2¼
Worthing	1/5½	1/1¾
Wrexham	1/7	1/2¼
Wroxham	1/5	1/0¾
Wycombe	1/6	1/1½
Wymondham	1/4½	1/0½
Yeovil	1/6	1/1½
York	1/7½	1/2¾

* Painters 1d. less than other Craftsmen. † Painters ½d. less than other Craftsmen. ‡ Plasterers 1/10½.

¶ Tradesman's Labourers 1/4½. Navvies and General Labourers 1/4.

§ Joiners, Plumbers, Bricklayers, Tilers and Masons receive 2/- per week or 4d. per day Tool Money.

For Building Trade Wages in Scotland, see page 604.

PRICES CURRENT OF MATERIALS*

Note: Owing to the exceptional circumstances which prevail at the present time prices of materials should be confirmed by inquiry. The softwood prices are the maxima established by the Timber Control Department.

At present linseed oil and genuine spirits of turpentine can only be supplied in cans in small quantities. Lead can only be obtained for Government or A.R.P. work and urgent repairs.

BRICKS, &c.

Delivered to site, City and Central Area, Full Lorry Loads. £ s. d.

Best Stocks 4 15 0
Second Hard Stocks 4 8 0

Per 1,000. Delivered at London Goods Stations.

2½ in. Phorpres.	King's Cross Station. per 1,000. s. d.	To sites in W.C. District. per 1,000. s. d.
Pressed bricks	46 3	50 6
Cellular bricks	46 3	50 6
Keyed bricks	48 3	52 6
Cellular Keyed bricks	48 3	52 6
Rustic bricks	*66 3	*70 6
Cellular Rustic bricks	*66 3	*70 6
Single Bullnose	64 3	68 6
White bricks	*66 3	*70 6
Sandfaced bricks	—	75 6

* Subject to a special discount of 2s. per 1,000 ft. accompanied by order for Pressed. £ s. d.

White Midhurst Facing Bricks (delivered London site) 3 12 6
Best blue Pressed Staffs 8 6 6
Do. Bullnose 8 16 6
Blue Wire Cuts 7 4 0

Best Stourbridge Fire Brick :—

£ s. d.		£ s. d.
2½ in. 7 15 0	3 in.	8 15 0

GLAZED BRICKS—

Best White Ivory and Salt Glazed Stretcher.	24 0 0	D'ble Str'tch'rs .. 32 10 0 D'ble Headers .. 29 10 0
Headers	23 10 0	One side & two ends 33 10 0
Quoins, Bullnose and 4½ in. Flats	30 10 0	Two sides & one end 34 10 0 Splays and Squints 31 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze, £5 10s. extra over white.

PARTITION SLABS.

Delivered London Area.

"PHORPRES" HOLLOW PARTITION BLOCKS.			
2" per yd. sup. ..	2 3	3" per yd. sup. ..	2 9
2½" " "	2 6	4" " "	3 1
CLINKER CONCRETE.			
2" per yd. sup. ..	1 6	3" per yd. sup. ..	2 0
2½" " "	1 8	4" " "	2 4
CRANHAM TERRA COTTA.			
2" per yd. sup. ..	3 0	3" per yd. sup. ..	3 8
2½" " "	3 6	4" " "	4 7
HEMPSTEAD—KEYED TWO SIDES.			
12" x 9" x 2"	2 6	12" x 9" x 3"	3 0
12" x 9" x 2½"	2 9	12" x 9" x 4"	3 9

Per yard super d/d. Free on site, London.

	s. d.	
Thames Ballast....	7 3	per yd.
Pit Ballast.....	6 3	" " delivered 2 miles radius Paddington.
Pit Sand	7 9	" "
Washed Sand	8 3	" "
¾in. Shingle	7 3	" "
¾in. Broken Brick	11 3	" "
Pan Breeze	8 3	" "

CEMENT.

Best British Portland Cement. Standard Specification delivered London Area in jute sacks (11 to ton), or paper bags (20 to ton) free (non-returnable) :— £ s. d.

4 ton loads and upwards site ..... Per ton 2 1 0
1 ton to 4 tons site 2 4 0
Alongside Vauxhall in 80-ton lots 1 18 6

"Ferrocrete" Rapid Hardening Cement :—

4 ton loads and upwards site 2 7 0
1 ton to 4 tons site 2 10 0
Alongside Vauxhall in 80-ton lots 2 4 6

Stores in Reserved Bins at Works 1/6 ton extra.

NOTE.—Jute sacks are charged 1s. 6d. each and credited 1s. 6d. nett, if returned in good condition within three months, carriage paid.

"Aquacrete" Water Repellent, "Blue Circle" Cement, 30/- per ton extra on ordinary "Blue Circle" Portland Cement prices.

"Colorcrete" Nos. 1 and 2 Coloured Rapid Hardening Portland Cement in 1-cwt. paper bags free (non-returnable) in 1-ton lots and upwards site 3 8 0

"Colorcrete," not rapid-hardening, in 1-cwt. paper bags free (non-returnable), according to colour, from £7 to £15 10s. per ton.

"Snowcrete" White Portland Cement in 1-cwt. paper bags free (non-returnable) 1 ton and upwards site 8 15 0

Super Cement (Waterproof) paper bags free 3 11 0
Roman Cement £6 15 Keene's Cement, White 5 10 0
Parian Cement £5 10 " " Pink 5 2 6
Cementone Colours for cement according to tints per cwt. from £2 16s. 0d.

PLASTER.

£ s. d.		£ s. d.	
Coarse, Pink	3 0 0	Sirapite, Coarse ..	3 10 0
" White ..	3 10 0	" Finish ..	3 18 0
Pioneer	3 10 6		
Super Carbo	2 7 6	4-ton loads and over London Area, paper bags free.	
Carbo Setting....	2 12 6		
Best Ground Blue Lias Lime	1 17 6	Grey Stone Lime	2 2 0
		Chalk Lime	2 2 0
Granite Chippings	1 5 0	Hair per cwt. ..	2 7 6

NOTE.—Sacks are charged 1s. 9d. each, and credited 1s. 6d., if returned in good condition within three months, carriage paid.

Stourbridge Fireclay in sacks 37s. per ton at rly. dep.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube .... s. d. 2 10½

BEER STONE—RANDOM BLOCK—

Free on rail at Seaton Station. per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. " 3 1½

Selected approximate size one way, 1d. per cubic ft. extra, selected approximately three sizes or for special work, 3d. per cubic ft. extra.

PORTLAND STONE—

Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube..... s. d. 4 5

Do. do. delivered on road waggons as above stations, per ft. cube..... 4 6

White basebed, 3d. per ft. cube extra.

NOTE.—1d. per ft. cube extra for every ft. over 20 ft. *average* and ½d. beyond 30 ft.

HOPTON-WOOD STONE—

F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P.ft.cb. 14 0

Sawn two sides..... 22 6

HOPTON-WOOD STONE—

Sawn three or four sides..... 27 9

YORK STONE, BLUE—*Robin Hood Quality.*

Delivered at any Goods Station, London.

6 in. sawn two sides landings to sizes (under 30 ft. super) .....per ft. super 5 0
6 in. rubbed two sides, ditto .. " 5 6
3 in. sawn two sides slabs (random sizes) ..... " 2 3½
2 in. to 2½ in. sawn one side slabs (random sizes) (paving) ..... " 1 6½
1½ in. to 2 in., ditto..... " 1 3½

HARD YORK—

Delivered at any Goods Station, London.

Scrappled random blocks.....per ft. cube 6 3
6 in. sawn two sides landings to sizes (under 40 ft. super) .....per ft. super 5 1½
6 in. rubbed two sides, ditto .... " 6 1½
4 in. sawn two sides slabs (random sizes) ..... " 3 1½
3 in. ditto ditto ..... " 2 5
2 in. self-faced random flags .....Per yd. super 7 6

CAST STONE.

Delivered in London are in full van loads, per ft. cube: Plain, 7s. 6d. Moulded, 8s. 6d. Sills, 10s. 0d.

HARD WOOD.

1 INCH AND UP THICK.

Average price for prime quality. £ s. d.

Dry Austrian Wainscot, per ft. cube..... 0 17 0
Dry American and/or Japanese Figured Oak, per ft. cube.....10 0 to 0 12 6
Dry American and/or Japanese plain Oak, per ft. cube 0 11 6
Dry sq. edged Honduras Mahogany, per ft. cube..... 0 15 0
Dry log-cut Honduras Mahogany, per ft. cube.....12 6 to 0 16 0
Dry Cuba Mahogany, per ft. cube..... 0 18 0
Dry Teak, per ft. cube..... 0 14 0
Dry American Whitewood, per ft. cube..... 0 10 6
Dry Australian Walnut, per ft. cube..... 0 17 0
Dry Queensland Silky Oak, per ft. cube.... 0 11 0
Dry African Mahogany, per ft. cube..... 0 10 0
Dry African Whitewood, per ft. cube..... 0 8 0
Dry English Wainscot Oak, per ft. cube..... 0 16 0
Best Scotch Glue, per cwt..... 3 0 0
Liquid Glue, per cwt.....4 7 0 to 5 10 0

SOFT WOOD.

GOOD BUILDING DEAL.

Inches.	Per stan.	Inches.	Per stan.
4 ×11.....	£38 10	3 × 6.....	£31 10
4 × 9.....	38 10	3 ×11.....	38 10
4 × 8.....	35 10	2 ×11.....	38 10
4 × 7.....	35 10	3 × 9.....	37 10
3 × 8.....	32 10	2½× 9.....	37 10
3 × 7.....	31 10	3 × 4½	30 0
2½× 7.....	31 10	3 × 4.....	30 0

FEDERATED EMPLOYERS'

Insurance Association Ltd.

(non-tariff)

Head Office:
8, King St., Manchester

London Office:
23, Lawrence Lane, Cheapside, London, E.C.2

All Classes of Insurance Transacted

(Except Life and Marine)

The Leading Office for

Contract Guarantee Bonds

PLANED BOARDS.

1 ×11..... £43 10 1 × 9..... £39 10

PLAIN EDGE FLOORING.

Inches.	Per sq.	Inches.	Per sq.
¾.....	22/6	1¼.....	35/-
⅞.....	25/-	1½.....	42/6
1.....	28/6		

TONGUED AND GROOVED FLOORING.

Inches.	Per sq.
1	29/-
1¼.....	35/6
1½.....	43/-

MATCHING (BEST)

Inches.	Per sq.
⅝	23/-
¾	25/-
1	29/-

Ins. BATTENS.	s. d.
¾×2 per 100 ft.	2 9

SAWN LATHS. s. d
Per bundle..... 2 6

SLATES.

First quality slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

£ s. d.		£ s. d.	
24 by 12 ..	31 5 0	18 by 10	16 10 0
22 by 12 ..	26 5 0	18 by 9	14 17 6
22 by 11 ..	23 12 6	16 by 10 ..	14 7 6
20 by 12 ..	23 2 0	16 by 8 ..	11 6 0
20 by 10 ..	20 15 0		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons..... Per 1,000 f.o.r. London.

Best machine-made tiles from Broseley or Staffordshire district..... £4 2 6
Ditto hand-made ditto 4 17 6
Ornamental ditto 5 2 6
Hip and valley tiles (per dozen) { Hand-made..... 0 8 6 / Machine-made..... 0 8 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

R.S. Joists, cut and fitted £16 0 0
Plain Compound Girders 19 0 0
" " Stanchions 21 0 0
In Roof Work 25 0 0

NOTE.—These prices are for standard pieces and not special pieces of an awkward nature.

MILD STEEL ROUNDS.—To London Stations, per ton.

Diameter.	£ s. d.	Diameter.	£ s. d.
¼ in.....	16 12 6	⅞ in. to ½ in...	15 2 6
⅝ in.....	15 12 6	⅝ in. to 2½ in.	14 12 6

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £10 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Standard Wrot. Mild Steel Tubes. and Tubulars. Sizes. ⅛in. to ⅜in. %	Standard Flanges. Sizes. ⅛in. to 2in. %	Standard Fittings. ⅛in. to 2in. %
Gas	60	65	58½
Water.....	57	62½	55
Steam.....	53½	58½	50
Gal, gas	50	55	48½
Galv. water	45	50	43½
Galv. steam	38½	43½	40

C.I. HALF-ROUND GUTTERS—London Price ex Works.

Per yd. in 6 ft. lengths.	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	1/2	11½d.	3½d.
3½ in.	1/3	1/1	3½d.
4 in.	1/3	1/2	5d.
4½ in.	1/4	1/4	6d.
5 in.	1/7	1/5½	7d.

O.G. GUTTERS.

3 in.	1/6	1/3½	4d.
3½ in.	1/8	1/3½	5d.
4 in.	1/8	1/4	6d.
4½ in.	1/9	1/7	7d.
5 in.	2/2	1/9½	8d.

RAIN WATER PIPES, &c.

Per yd. in 6 fts.	Pipe.	Bends, angles.	stock Branches stock angles.
2 in.	1/9	1/2	1/9
2½ in.	1/10	1/4	2/1
3 in.	2/3	1/8	2/6
3½ in.	2/8	2/0	2/11
4 in.	3/1	2/5	3/6

NETT PRICES.

Tonnage allowance—4-ton lots, 5 per cent. 2-ton lots. 2½ per cent.

L.C.C. COATED SOIL PIPES—London Prices, ex Stock.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches. stock angles. s. d.
2in. per yd. in 6 fts....	3 0	2 1	2 6
2½ in. "	3 6	2 4	3 2
3 in.	3 9	2 6	3 10
3½ in.	3 10	3 2	4 5
4 in. "	4 3	3 6	5 0

L.C.C. COATED DRAIN PIPES.—London Prices, ex Stock,

	Pipe. s. d.	Bends, stock angle, s. d.	Branches. stock angles. s. d.
3 in. per yd. in 9 ft. lengths	4 6	5 6	8 9
cwt.qr.lbs.			
4 in. " 1 1 20	6 5	6 3	11 0
5 in. " 1 2 22	8 0	11 3	17 0
6 in. " 2 0 6	9 6	13 0	21 3

Gaskin for jointing 40/- per cwt.

* The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information. Prices are subject to 2½ per cent. cash discount.

PRICES CURRENT OF MATERIALS—(contd.)

	Per ton.				London		
IRON—	£	s.	d.		£	s.	d.
Common Bars	12	15	0	..	13	15	0
Staffordshire Crown Bars—Good merchant quality	14	10	0	to	16	0	0
Staffordshire Marked Bars	18	0	0	..	19	0	0
Mild Steel Bars	12	18	0	..	13	18	0
Steel Bars, Ferro-Concrete quality, basic price	14	8	0	..	15	8	0
Hoop iron, basic prices	14	8	0	..	15	8	0
,, Galvanised	24	8	0	..	26	8	0

IRON—	Per ton in London.						
Soft Steel Sheets, Black—	£	s.	d.		£	s.	d.
Ordinary sizes, to 20 g.	16	5	0	..	17	5	0
,, ,, 24 g.	17	5	0	..	18	5	0
,, ,, 26 g.	18	5	0	..	19	5	0
Sheets, Flat, Best Soft Steel, C. R. and C.A. quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	17	10	0	..	18	10	0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	19	10	0	..	20	10	0
No. 1 quality £4 per ton extra.							
Flat and Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 9 ft. to 20 g.	18	5	0	..	20	5	0
Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g.	18	15	0	..	22	5	0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	20	15	0	..	22	15	0
Sheets, Gavanised, Flat, Best quality—							
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	19	5	0	..	22	5	0
Best Soft Steel Sheets, 22 g. and 24 g.	20	5	0	..	21	15	0
Best Soft Steel Sheets, 26 g.	21	15	0	..	22	15	0
Cut Nails, 3 in. to 6 in.	19	0	0	..	21	0	0

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

COPPER.

		s.	d.
Seamless Copper tubes (basis)	per lb.	1	1
Strong sheet	,,	1	3
Thin	,,	1	4
Copper nails	,,	1	3
Copper wire	,,	1	3

PLUMBERS' BRASS WORK.

Delivered in London.
Stamped by Met. Water Board.

CRUTCH HEAD SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
29/-	45/- per doz.

CHROMIUM PLATED TOILET SCREW DOWN BIB COCKS FOR IRON. EASY CLEAN.

½ in.	¾ in.
40/-	59/- per doz.

SCREW DOWN STOP COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
31/-	44/6	75/-	175/-	250/-	396/- per doz.

SCREW DOWN STOP COCKS WITH TWO UNIONS FOR LEAD.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
42/6	65/-	102/-	195/-	210/-	510/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	9/-	14/-	24/-	37/6	54/- per doz.

HEAVY CROYDON BALL VALVES.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
33/6	55/6	85/-	165/-	237/- per doz.

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
9/-	11/-	16/6	29/-	42/-	45/- per doz.

BRASS FERRULES OF SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
9/6	11/6	20/6	26/-	37/- per doz.

DRAWN LEAD TRAPS WITH BRASS CLEANING SCREWS.

	1¼ in.	1½ in.	2 in.	3 in.
8 lb. Lead P.	17/6	23/-	32/6	66/6 per doz.
8 lb. Lead S.	21/6	27/6	39/6	73/- per doz.

SOLDER.—Plumbers', 1/2, Tinmen's, 1/4, Blowpipe, 1/6 per lb.

PAINTS, &c.

		£	s.	d.
Raw Linseed Oil, in drums	per gallon	0	3	8
Boiled ,, ,, in drums	,,	0	4	0
Turpentine, in drums (10 gals.)	,,	0	7	6
Genuine Ground English White Lead, per ton		52	0	0

(In not less than 5-cwt. casks.)
Extra for 1-cwt. kegs over 5-cwt. casks is 2/9 cwt.

GENUINE WHITE LEAD PAINT.

"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganswyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5-cwt. lots	£	s.	d.
per ton delivered	71	0	0
Red Lead, Dry (packages extra) per ton	45	0	0
Best Linseed Oil Putty per cwt.	0	15	0
Size. XD quality fkn.	0	3	6

Turpentine substitute can be obtained and prices vary according to the quality from 2/9 gallon upwards.

VARNISHES, &c.

		Per gallon.		
Oak Varnish	Outside	0	14	0
Fine do.	,,	0	16	0
Fine Copal	,,	0	18	0
Pale Copal	,,	1	0	0
Pale Opal Carriage	,,	1	4	0
Best do.	,,	1	12	0
Floor Varnish	Inside	0	18	0
Fine Pale Paper	,,	0	18	0
Fine Copal Cabinet	,,	1	2	0
Fine Copal Flatting	,,	1	0	0
Hard Drying Oak	,,	0	18	0
Fine Hard Drying Oak	,,	0	19	6

		Per gallon.		
Fine Copal Varnish	Inside	1	0	6
Pale do.	,,	1	12	0
Best do.	,,	1	2	6
Best Japan Gold Size		1	12	6
Best Black Japan		0	10	0
Oak and Mahogany Stain (water)		0	12	0
Brunswick Black		0	7	6
Berlin Black		0	14	0
Knotting (patent)		0	15	0
French and Brush Polish		0	12	0
Liquid Dryers in Terebene		0	9	0
Cuirass Black Enamel		0	7	0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

ORDINARY GLAZING QUALITY AND SELECTED GLAZING QUALITY.

per ft. super.		per ft. super.	
18 oz. O.Q.	2½d.	32 oz. O.Q.	5½d.
18 ,, S.Q.	2⅝d.	32 ,, S.Q.	6¼d.
24 ,, O.Q.	3¼d.	Obscured Sheet, 18 oz.	3d.
24 ,, S.Q.	3⅞d.	,, ,, 24 ,,	4¼d.
26 ,, O.Q.	3⅝d.	Fluted 21 ,,	9d.
26 ,, S.Q.	4⅓d.	Em'lld 18 oz., 5½d., 24oz.6⅝d.	

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE AND FIGURED CATHEDRAL, ETC., IN CUT SIZES.

	Per ft.
Rolled plate, ¼ in.	5½d.
Rough cast double rolled, ⅛ in.	6½d.
Rough cast double rolled, ¼ in.	6½d.
Figured rolled, etc., white	6½d.
Figured rolled, etc., tinted	9½d.
Rolled Sheet	6d.
White rolled cathedral	6d.
Tinted rolled cathedral	8½d.

Rolled plate is the same price as rough cast double rolled.

	per ft.
Reeded, Broad Reeded, Cross Reeded and Chevron Reeded, ⅛ in. thick	0 10½
Wire Rolled, ¼ in. thick	0 9½
Wired Cast, ¼ in. thick	0 9½
"Calores" Sheet, 21 oz.	2 6
,, ,, 32 oz.	4 0
,, Cast, ¼ in. thick	0 10
,, ,, ⅜ in. thick	1 0
,, ,, ½ in. thick	1 2

"VITA" GLASS.

	s.	d.
Clearsheet—not exceeding 1 foot	1	6
,, ,, 2 feet	1	3
,, over 2 feet	1	9
Polished plate not exceeding 1 foot	1	6
,, ,, 2 feet	3	0
Cathedral—not exceeding 1 foot	1	0
,, larger size	1	6
Horticultural Sheet and Cathedral "Vita" Glass Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1	0
3/16 in. Wired Georgian Design. Sizes up to 96 inches long by up to 24 inches wide	2	6

LEAD, &c.

(Delivered in London.)	Per ton. £	s.	d.
LEAD.—Sheet, English, 4 lb. and up	27	5	0
Pipe in coils	27	15	0
Soil pipe	32	5	0
Compo pipe	34	0	0

NOTE.—Country delivery, 20/- per ton extra, lots under 3 cwt. 4/- per cwt. extra and over 3 cwt. and under 5 cwt., 2/6 per cwt. extra. Cut to sizes, 4/- per cwt. extra.

Old lead, ex London area, at Mills per ton £17 0 0

BUILDING TRADE WAGES IN SCOTLAND

Following are grade rates authorised by the Scottish N.J.C. from April 1. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

Grade Classification	A	A¹	A²	A³	B	B¹
Craftsmen	1/8	1/7½	1/7	1/6½	1/6	1/5½
Labourers	1/3	1/2¾	1/2¼	1/2	1/1½	1/1¼

Aberdeen	A	Dumfriesshire	A³	Inverness	*
Ayrshire	A	Dundee	A	Inverurie	A¹
Banff	B	Dunoon	A	Kincardineshire	A³
Berwickshire	A²	East Fife	A	Kinross-shire	A
Bridge of Allan	A	East Lothian	A	Lanarkshire	A
Broughty Ferry	A	Edinburgh	A	Midlothian	A
Clackmannanshire	A	Fifeshire	A	Monifieth	A
Doune	A	Forfarshire	A³	Moray and Nairn	B
Dunblane	A	Glasgow	A	Newport	A
Dumbartonshire	A	Greenock	A	Peeblesshire	A²
Dumfries	A¹	Hamilton	A	Perth	A

Perthshire	A³
Peterhead	A¹
Renfrewshire	A
Rothesay	A
Roxburghshire	A³
St. Andrews	A
Selkirkshire	A³
Stewartry	A³
Stirlingshire	A
Stornoway	A³
Tayport	A
West Lothian	A

*This town has its own rates: Masons, 1/6; Carpenters, 1/6; Slaters, 1/6; Plumbers, 1/6½; Plasterers, 1/7, but 1/8 is paid owing to the scarcity at present; Painters, 1/6 and Labourers, 1/1½.

The information given in this table is copyright. Rates of wages in England and Wales are given on page 602.

Having secured the Contract—
What about the Steel Scaffolding!
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SCAFFOLDING
For the lowest Prices apply to the Oldest Firm in The Scaffolding Trade.
STEPHENS & CARTER LTD.
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THE SCOTTISH BUILDER

NEW BUILDINGS

ABERDEEN.—SCHOOLS, ETC.—The Town Planning Committee of the T.C. has approved of the following plans: E.C., third and final section of the reconstruction and extension of the High School for Girls, at £40,000; Bon-Accord Tool Co., reconstruction of works in Willowdale-place, at £2,000.

EDINBURGH.—GARAGE, ETC.—The Dean of Guild Court has passed the following plans: Messrs. Edinburgh Rutland Garage, Ltd., garage and service station at the corner of Canning-street and Canning-place; Messrs. Robert Mitchell and Sons, reconstruction of 18, Clyde-street.

GLASGOW.—BUILDING.—Plans have been prepared for new showrooms in Crow-road. Messrs. William S. Gordon and Co., Crow-road, Jordan Hill, are the builders.—Plans approved for workshops and garages at Crescent-road, Scotstounhill, for Messrs. G. E. Carnachan, Ltd., Scotstounhill Garage. Mr. J. Easton, architect, 248, West George-street, Blythswood-square.—Alterations and additions are to be made at Sherbrooke Hotel, Pollokshields. Mr. W. A. Gladstone, architect, 180, Nitsdale-road, Strathbungo.—Plans approved for reconstruction and extensions of the Corporation garage in Craigton-road. Mr. Alexander Findlay, architect, 46, Bath-street, Blythswood.

GLASGOW. — ADAPTATION. — The Emergency Committee has under consideration a plan to utilise Duke-street Prison for the tem-

porary housing of people whose homes might be destroyed in air raids.

PERTH.—HOSPITAL.—An emergency hospital with 600 beds is proposed to be erected near Perth by the Government.

STIRLINGSHIRE.—BUILDING.—The Plans Sub-Committee of the C.C. has passed the following plans: Stirlingshire C.C., eight three-apartment and 12 four-apartment cottage-type houses at Queenzieburn (architect, Mr. D. W. Glass, 14, Dumbarton-road, Stirling); Dumbartonshire C.C., additions at the Lennox Joint Hospital, Milton of Campsie (architect, Mr. J. Weekes, County Architect, 18, Park-circus, Glasgow); Messrs. McDonald and Paul, shop premises at 28-30, Main-street, Lennoxtown (architect, Mr. J. Lindsay, 248, West George-street, Glasgow).

NEW COMPANIES

THE particulars quoted below have been compiled by Messrs. Jordan and Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery-lane, W.C.2, from the documents available at the Companies Registry.

S. J. CADWELL, LTD.—(356987). Registered October 2. 17, Windmill-road, Hampton Hill, Middlesex. Constructional engineers, etc. Nominal capital: £5,000.

ASTBURY BUILDERS, LTD.—(356950). Registered September 30. 4, Warren-road, Hill Cliff, near Warrington. Building contractors, etc. Nominal capital: £1,000.

INTERNATIONAL VENEER PRODUCERS, LTD.—(356930). Registered September 29. Ibex House, Minories, E.C.3. Veneer, plywood, wood and timber merchants, etc. Nominal capital: £2,000.

MCPHERSON AND HAREWOOD, LTD.—(357035). Registered October 5. To construct, equip, work, manage or control buildings, public works and conveniences of all kinds, and to carry on the business of miners, metallurgists, builders and contractors for municipal and public authorities and governments, etc. Nominal capital: £5,000. D. D. C. Giddins, Skreens Park, Willingale, Essex.

STOCKPORT BUILDERS' MERCHANTS, LTD.—(357023). Registered October 4. 35b, Dialstone-lane, Stockport. Builders' and decorators' merchants, etc. Nominal capital: £1,300.

A. EGERTON (MANCHESTER), LTD.—(357070). Registered October 7. 124, Ladybarn-road, Fallowfield, Manchester, 14. Builder, contractor, shop-front fitter and joiner. Nominal capital: £1,000.

BIRCHILLS JOINERY (WALSALL), LTD.—(357089). Registered October 7. Joinery manufacturers and contractors, etc. Nominal capital: £1,000. H. H. Saunders, 58, Dartmouth-avenue, Walsall.

The Team Valley Estate: Maintenance of Activities.

THE North-Eastern Trading Estate, Ltd., is to carry on its activities in the Team Valley despite the war, and further applications to erect factories, it is stated, will receive favourable consideration.

Guildford Cathedral: Continuance of Work of Construction.

IT has been decided not to close down at present the building of the new Guildford Cathedral, but to continue the work with the older men not called up for national service. It is hoped to roof in the building soon to protect the fabric from the winter weather, and to consolidate the building already completed. Money is available for this as a result of the intensive campaign held earlier in the year.

"Road Transport in War Time."

This book, by L. G. White, is of special interest to all owners and operators of commercial motor vehicles as it deals in a concise fashion with the emergency organisation of road transport, with special reference to the group system, fuel rationing, and the relevant compulsory records now required. Price 6d. (post free 7d.), the book is issued by Messrs. Jordan and Sons, Ltd., 116, Chancery-lane, W.C.2.

TENDERS

The Editor welcomes authentic information for this feature from architects, surveyors or contractors. Items should reach 4, Catherine-street, Aldwych, W.C.2, not later than Wednesday morning.

Tenders for A.R.P. work will be found under "A.R.P. Schemes."

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government departments.*

Aberdeen.—New Tallos public school. A. J. O. Allan, architect and quantity surveyor, Union-st.—Joinery, carpentry and ironmongery, *A. Rattray, Aberdeen, £9,876; plumbing and sanitary engineering, *Parkinson and Edmunds, Ltd., Aberdeen, £4,860.

Atherton.—Approximately 400 lin. yd. of wrot. iron railings in Car Bank-st., for U.D.C. Frank L. Boydell, A.M.I.C.E., S. *Staveleys, Ltd., Albion Iron Works, Atherton.

Batley.—Works for T.C.:—Painting Purlwell house and 40 houses on Purlwell estate:—*E. Hodskinson, 168, Greenhill-rd., Bramley; internal decoration to bath manager's house and renovation at child's welfare centre:—*W. H. Sykes. (Rest at Batley.)

Belfast.—Works for Corporation: Auxiliary fire station at Ardoyne:—*J. Boyd and Sons, Ltd., Belfast, £2,590 4s. 7d.; alterations and additions to St. Mary's public elementary school:—*J. Moreland, Belfast, £1,300.

Billingham-on-Tees.—Privy conversion for 96 houses at Wolviston, for U.D.C. J. H. Hill, S.:—*J. Hodgson, Yarm, Yorkshire.

Blackpool.—Works, for C.B.:—Electrical installation in connection with St. Walburgas-rd. housing estate: *A. S. Parkinson, Blackpool; sanitary fittings in connection with St. Walburgas-rd. housing estate: *Hindle and Co., Blackpool; electrical installation at houses at St. Annes-rd. housing estate: *G. D. Lax, Blackpool; decoration of police premises 184, Red Bank-rd.: *A. J. Watson, 8, Collingwood-av.; 40 Nissen huts: *John Booth and Sons (Bolton), Ltd.

Chester.—Works for T.C. (C. Greenwood, City E.):—Decontamination centre and rescue party depot at Walls-ave:—*E. Pritchard, 16, Canal-st., Chester, £1,375; electrical work in connection with houses and flats on Lache estate:—*E. B. J. Gould, Ltd., Cromwell-rd., Ellesmere Port; flooring work at Chester City Hospital:—*J. Gerrard and Sons, Ltd., Swinton, Manchester, £188.

DON'T TENDER UNSUCCESSFULLY

SECURE CONTRACTS WITH

THE STEEL SCAFFOLDING CO., LTD.

"BIG BEN TOWERS." 23, OATLANDS DRIVE, WEYBRIDGE, SURREY. 'Phone: Walton 614 and 615.

Dartford.—Works, for T.C.:—Steel protecting roof and framework over the 11-kv. main switchboard—‡Durasteel Roofs, Ltd., £288 13s. Exterior painting of 150 houses and 122 sheds:—

Yeomans & Partners, Ltd. ...	£991 10
F. Summers ...	983 16
C. J. Manning (Builders), Ltd. ...	856 17
R. Butler ...	822 0
W. L. Fisher ...	800 0
*O. M. Keevil ...	763 2
S. C. Grover, Ltd. ...	762 0
S. Wiener ...	737 5

Dundee.—Reinforced concrete floors and roof, etc., at extensions to boiler-house and bunker-house at generating station, Carolina Port, for T.C. D. Latto, Town Clerk:—*James Laburn, Dundee, £3,948 1s. 4d.

Glasgow.—A.R.P. shelters, for large block and insurance buildings in St. Vincent-st. Southern and Cox, architects, 113, St. Vincent-st., Blythswood:—Excavation, brick and building, *J. Banks and Sons, Maryhill; steel structure, *Redpath, Brown and Co., Ltd., Glasgow; joinery, carpentry and ironmongery, W. Martin, Glasgow; plaster and lathing, *McCorkandale and Hall, Langside; electrical fittings and installation, *A. Lindsay and Co., Glasgow.

Kilkenny.—54 houses on Kells-Waterford road, for T.C.:—Hodgins and Watters, Dublin, £24,309 19s. 3d.; R. B. Nolan, Waterford, £22,973; Dowling Bros., Kilkenny, £22,780 10s.; J. Conlan, Carlow, £22,035; *P. Nolan and Sons, Carrick-on-Suir, £19,687.

¶London (Air Ministry).—Contracts placed for week ended Oct. 14:—Internal wiring, R. Finlayson and Co., Ltd., Wick; artificers' works, J. Jones and Son (Woolton), Ltd., Liverpool; heating and hot-water supply apparatus, Matthew Hall and Co., Ltd., London, Mumford, Bailey and Preston, Ltd., London, and G. N. Haden and Sons, Ltd., London; various buildings and external services, Nox, Ltd., London; steel doors for bellman hangars, Tees-side Bridge and Eng. Works, Ltd., Middlesbrough, Cleveland Bridge and Eng. Works, Ltd., Darlington, P. and W. MacLellan, Ltd., Glasgow, Head, Wrightson and Co., Ltd., Thornaby-on-Tees, Palmers Hebburn Co., Ltd., Hebburn-on-Tyne, Braithwaite and Co. (Engineers), Ltd., Newport, Mon., Motherwell Bridge and Eng. Co., Ltd., Motherwell; various buildings and external services, Richard Costain, Ltd., London, Thomas and Edge, Ltd., London, A. M. Carmichael, Ltd., Edinburgh, John Laing and Sons, Ltd., London (3 contracts), Humphreys, Ltd., London (2 contracts), E. C. Jordan and Son, Ltd., Newport, Mon.

London.—Works, for M.W.B.:—Concrete foundations for oil storage purposes at Cheshunt pumping station—*William Moss & Sons, Ltd., £363. Same at Eynsford pumping station—*Grace & Marsh, Ltd., £449. Electric lighting system at Green-st. Green pumping station and cottage—*Anderson, Angell & Co., Ltd., £113 12s. Improved sanitary arrangements in pumping station and cottage at Rye Common works—

R. Talbot & Sons (London), Ltd. ...	£666 15
‡James Stewart & Sons (Tottenham), Ltd. ...	412 13
Henry Norris & Son, Ltd. ...	407 8

Renovations to buildings at Staines intake, Wraysbury—*Direct Labour, £225. 235 yards of galvanised corrugated sheet fencing at Battersea works—*F. Braby & Co., Ltd., £160.

Lunesdale.—Rebuilding retaining wall at Rock in connection with improvement scheme, for R.D.C.:—*J. W. Mashiter, Old Post Office, Caton, Lancashire, 4s. 3d. per yard.

Manchester.—Additions to winding-room to mill, Heaton Vale Mill, Blackley, New-rd., Blackley, for Whittaker and Harwood, Ltd., Blackley:—*Works Department, Market-st., Blackley.

Manchester.—Alterations and conveniences to Christie and Holt Radium Institute, Wilmslow-rd., Withington, for board of management. H. S. Fairhurst and Son, architects, 55, Brown-st. :—*W. Thorpe and Son, Ltd., Chester-rd., Cornbrook, Manchester.

Manchester.—Extensions to stores, Hendham-vale, Harpurhey, for Small and Parkes, Ltd., Hendham Vale-works. H. S. Fairhurst and Son, architects, 55, Brown-st. :—Contractors, *Wm. Gornall and Sons; roof covering, *D. Anderson and Son, Ltd.; steelwork, *Banister, Walton and Co., Ltd.; reinforced concrete, *Fram Reinforced Concrete Co.; plastering and painting, *J. Ferguson and Co. (Decorators), Ltd.; joinery, *Stanley Porter, Bolton; plumber, *R. W. Whittaker, Prestwich. (Remainder of Manchester.)

Margate.—Drill hall for Margate and Ramsgate Platoons of the 4/5 Battalion the Buffs. Hoare and Wheeler, architects, 15, Portman-st., London, W.1. Quantities by Henry Cooper and Sons, 181, Queen Victoria-st., London, E.C.4 :—*G. Parker and Sons, Ltd., 124, Sumner-rd., Peckham, S.E.15.

Newcastle.—Air raid shelters for City Council :—One at Haymarket depot—*Kirk and Dickinson, Ltd., Newcastle, £589 15s. 2d.; one in cellar near Sand Blast, Byker depot, and one at Byker depot—*Davison, Eason and Harkness, Newcastle, £360 and £460 respectively.—Electric-light installation at Waterworks-road junior school—*R. W. Leek and Co., Newcastle, £226 7s.—Heating and hot-water installation, at same school—*G. N. Haden and Son, Ltd., Newcastle, £902 10s.

Roscommon County.—Dispensary and doctor's residence at Ballaghadareen, for the County Board of Health :—*E. Dolan, Castlerea, £1,787.

¶Scotland (H.M.O.W.).—Tender accepted during week ending Oct. 10 :—Supply and delivery of Turnall Trafford tiles, etc., to Department of Health emergency hospitals at Law Junction, Stracathro, Killearn, Bridge of Earn and Ballochmyle—Turners Asbestos Cement Co., Castle-chambs., 63, Renfield-st., Glasgow.

Stockton-on-Tees.—Warehouse, for E. D. Walker & Wilson. Kitching & Co., architects, 21, Albert-rd., Middlesbrough : — *J. C. Watson, Prudential-bldgs., Stockton-on-Tees.

Stourbridge.—Reconstruction and lengthening of Foster-st. railway bridge for G.W.R. Co., Paddington, London, W.2. Plans by the resident engineer :—*H. Bolton and Co., Ltd., 106, Queen's Head-rd., Birmingham, 21.

Sunderland.—Redecoration of the parole villa and two convalescent homes at Cherry Knowle hospital, for T.C. : — *J. Langley, Sunderland, £165.

Swansea.—Works for C.B. :—Structural steelwork, raw coal bunkers, pulverised fuel storage bins, operating floors, etc. ‡Braithwaite and Co. (Engineers), Ltd., £34,896; water supply at proposed factory at Waunarlwydd. ‡Direct labour, £24,000.

Walkeringham.—Laying of a supply of water from the water main along the Walkeringham-Beckingham-rd. to the Walkeringham Smallpox hospital, for North Nottinghamshire Joint Smallpox Hospital Board. A. Norman Schofield, clerk of the Board, Town Hall, Worksop :—*R. Shaw and Son (Worksop), Ltd., Worksop, £109 17s. 6d.; C. W. Gilbert and Son, Gainsborough, £120.

West Hartlepool.—Extensions to Sacred Heart school, for managers :—*J. Proud, Ltd., 195, York-rd., West Hartlepool, £16,300.

Wolverhampton. — Congregational church hall and school at Low Hill for Trustees of Staffordshire Congregational Union :—*W. J. Archer, Rookery-rd., Birmingham, 21, £3,300.

Worcestershire.—Sanitary annexe to male block house at Bromsgrove Institution, for C.C. :—*W. Weaver, Ltd., Bromsgrove, £336 7s.

York.—Works for T.C. :—Council senior mixed school, Gale-la., Acomb (Penty and Thompson, architects, Yorkshire Penny Bankchams, Coney-st.) :—*W. Birch and Sons, Ltd., Spen-la., York. Widening and reconstruction of Yearsley bridge (C. J. Minter, City E.) :—*R. F. Knowles, Shelbrook, £1,127.

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